

2010-2011  
Annual Report



LEOPOLD CENTER  
FOR SUSTAINABLE AGRICULTURE



Mission: The Leopold Center was established by the Iowa Legislature as part of the Iowa Groundwater Protection Act of 1987. Its legislatively mandated goals are to identify and reduce negative environmental and socio-economic impacts of agricultural practices, contribute to the development of profitable farming systems that conserve natural resources, and cooperate with Iowa State University Extension to inform the public of new findings.

Vision: The Leopold Center for Sustainable Agriculture explores and cultivates alternatives that secure healthier people and landscapes in Iowa and the nation.

Information for this report was compiled by Leopold Center staff with the help of its researchers and educators, who are committed to improving Iowa agriculture and the lives of Iowans.

Edited by Mary Adams  
Designed by julsdesign inc., Ankeny, Iowa

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This annual report is dedicated to the memory of Nina Leopold Bradley (1917-2011), Aldo's middle daughter, devoted environmentalist, conservationist and keeper of the Leopold flame.

## Perseverance in 1771 and 2011

I like to think that Samuel Adams, sometimes referred to as the “father of the American Revolution,” would have been a good advocate for the Leopold Center’s longtime efforts to aid Iowa agriculture, even though his family owned a malt house in Boston’s days as a British colony. He and Aldo Leopold lived at different times and espoused different causes, but they both tried to appeal to people’s better natures to bring about changes in their environment.

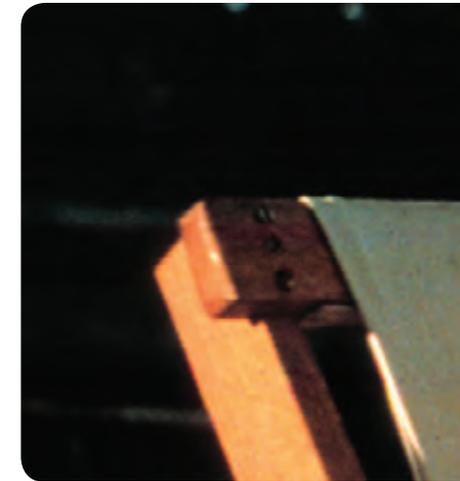
Sam was well-known for his ability to organize citizens at the local level in order to achieve a broader goal, which makes him sound like an early proponent of the many successful working groups and issue teams that the Leopold Center has sponsored. He and his colleagues devised the

“committee of correspondence” system to link the colonists — which can’t be too much different than our interactive website or Facebook page. Sam Adams may have lived 240 years ago, but he had some ageless words of wisdom for us, during a year that posed many challenges for the Leopold Center: “The necessity of the times, more than ever, calls for our utmost circumspection, deliberation, fortitude, and perseverance.”

We did persevere, and we look back on the last fiscal year as one with many Leopold Center accomplishments, some taking care of needed business and some quite out of the ordinary. Here are just a few things we did at the Leopold Center or helped others to achieve in the last 12 months:

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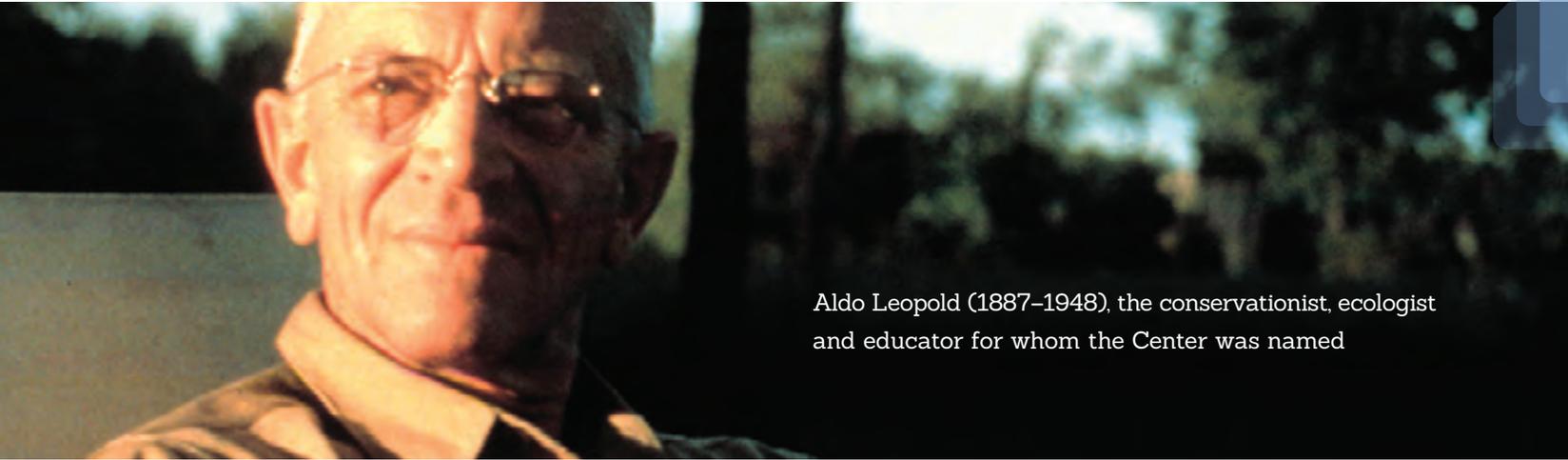


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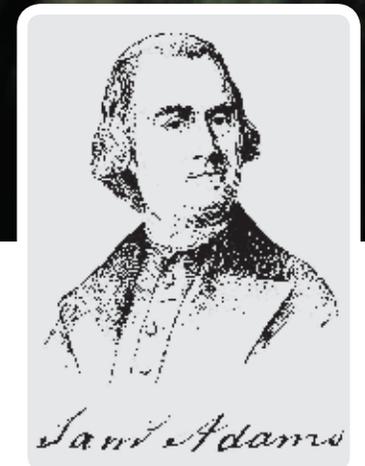
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Aldo Leopold (1887–1948), the conservationist, ecologist and educator for whom the Center was named



- Climate scientist Gene Takle presented the 2011 Shivvers Lecture
- Audubon farmers Vic and Cindy Madsen accepted the Spencer Award
- Four advisory board meetings held, including a June 1 retreat
- After receiving 54 pre-proposals, 19 new grants awarded and 25 projects renewed
- Four *Leopold Letters* published, 15 electronic newsletters emailed
- Three GPSA students were able to continue their studies with Leopold Center funds
- Fifteen working groups convened; 6 Marketing, 7 Ecology, 1 Cross-cutting, 1 Policy
- 179 educational events sponsored
- An average of 16,300 people visited the Center's website each month
- Iowa Local Food and Farm Plan developed and produced for the Iowa Legislature

- Financial reporting system revamped
- Hosted Iowa premiere showing of "Green Fire," a new documentary about Aldo Leopold
- Sponsored a workshop to help Center grantees incorporate resilience thinking into their work

The Leopold Center advisory board and staff look forward to another year of progress as we tinker with some old programs and embark on new ones. We remain firmly committed to Aldo Leopold's stirring "land ethic" with a knowing nod to Sam Adams' call for perseverance in our efforts to help make Iowa agriculture more sustainable.

Mary Adams (no relation to Sam)  
Annual Report Editor

# Curtiss Hall



C. F. Curtiss



A Message from the Interim Director

## Celebrating the Leopold Center's Home Base

Iowa is the “programmatic home” of the Leopold Center, with projects and contacts throughout the state, and interests that span Iowa’s land, waters, farms, food and people. But the “home office,” the “logistical hub” of the Center, has been located in 209 Curtiss Hall at the heart of Iowa State University since 1995. Curtiss is the stately edifice that also houses the administrative offices of ISU’s College of Agriculture and Life Sciences, Iowa Agriculture and Home Economics Experiment Station and Iowa Agriculture and Natural Resources Extension. The Leopold Center is aptly situated in this nerve center for many programs and activities uniquely tied to agricultural research, extension and teaching.

I did some research on the Center's longtime home and turned up some interesting history. The building was named for former Dean of Agriculture C. F. Curtiss, who led the college from 1902 to 1932, and lived in the Farm House (just north of Curtiss Hall) from 1897 to 1947. He was a livestock man and particularly loved horses. His greatest achievement was building a research dynamo — the Experiment Station. He believed that “The work of the true investigator (agricultural researcher will outlive the work of the teacher or administrative head.” Clearly Curtiss understood very early the power of research for Iowa agriculture. He managed the college through rapid and profound changes during his career as dean. Among his many accomplishments were introducing soybeans and alfalfa to Iowa as major crops.

However, one of his most visible legacies is Curtiss Hall, for which he oversaw construction early in the last century. The stately Beaux-Arts architecture building made of Bedford limestone faces west to ISU's park-like Central Campus. In 1947, it was rededicated in honor of Dean Curtiss. The building, originally named Agriculture Hall, was first dedicated in 1909 and replaced old Ag Hall (now Catt Hall).

Curtiss Hall is known for its massive front stairway leading to a two-story portico with Ionic columns and Ceres, the Roman goddess of agriculture, looking out from the pediment. On each side of the front doors under stone ox skulls are the words “Dedicated to Education.” The building has four floors of offices, two impressive fireplaces, stained glass skylights, an open three-story rotunda, multiple classrooms and a large assembly hall or auditorium.

“The work of the true investigator (agricultural researcher) will outlive the work of the teacher or administrative head.”

C.F. Curtiss, 1925

Today Curtiss Hall is undergoing major renovation. The auditorium has been remodeled; construction is underway on the ground floor that will centralize the offices that serve agricultural students. Plans are underway for another phase of the project — the new Harl Commons beneath the auditorium, which will be a hub of student activity. The Center is considering its role in the Curtiss Hall renovation and if you are interested in supporting the renovation efforts, please contact me.

The Leopold Center is well positioned at the heart of the College of Agriculture and Life Sciences amid the buzz of agriculture and life sciences students, faculty and practitioners — as well as many national and international visitors. It is an excellent vantage point from which to conduct the Center's mission — nestled within the campus and still connected to the state and the world of agriculture through the comings and goings of many agriculturalists of all ages and interests. I can think of no better place to fulfill the Center's purpose than from its position in this historic, vibrant building at the heart of Iowa's land-grant agricultural university.

Mark Honeyman  
Interim Director

Below: Curtiss 1909  
Photos Courtesy of ISU Special Collections



## Leopold Center Advisory Board

\* Board members who served only a portion of the fiscal year

**Joe Colletti** | Senior Associate Dean  
College of Agriculture and Life Sciences, Iowa State University

**Bill Ehm** | Director  
Environmental Protection Division, Iowa Department  
of Natural Resources

**Dan Frieberg**  
Agribusiness Association of Iowa, West Des Moines\*

**Doug Gronau** | Farmer  
Iowa Farm Bureau Federation, Vail

**Maynard Hogberg** | Professor of Animal Science  
Iowa State University

**Erin Irish** | Professor of Biological Sciences  
University of Iowa

**Laura Jackson** | Professor of Biology  
University of Northern Iowa

**Susan Jutz** | Farmer  
Practical Farmers of Iowa, Solon

**Paul Lasley** | Professor of Rural Sociology  
Iowa State University

**Aaron Heley Lehman** | Farmer  
Iowa Farmers Union, Polk City

**George Malanson** | Professor of Geography  
University of Iowa

**John Olthoff** | Professor of Agriculture  
Dordt College, Sioux Center

**Patrick Pease** | Professor of Geography  
University of Northern Iowa

**Jim Penney**  
Agribusiness Association of Iowa, Ames\*

**John Sellers, Jr.** | Farmer  
State Soil Conservation Committee, Corydon

**Jennifer Steffen** | Farmer  
District Soil and Water Commission, Birmingham (chair)

**Keith Summerville** | Associate Dean, College of Arts  
and Sciences | Associate Professor of Environmental  
Science and Policy  
Drake University

**Maury Wills** | Bureau Chief  
Agricultural Diversification and Market Development,  
Iowa Department of Agriculture and Land Stewardship

## Leopold Center Staff

\*\* Served part of the year \* Part-time or shared appointment

**Mark Honeyman** | Interim Director\*\* \* (honeyman@iastate.edu)

**Lois Wright Morton** | Interim Director through March 7

**Frederick Kirschenmann** | Distinguished Fellow\* (leopold1@iastate.edu)

**Mary Adams** | Outreach and Policy Coordinator (madams@iastate.edu)

**Corry Bregendahl** | Assistant Scientist\* (corry@iastate.edu)

**Craig Chase** | Interim Marketing and Food Systems Coordinator\*\* \* (cchase@iastate.edu)

**Karen Jacobson** | Administrative Specialist (kjacobso@iastate.edu)

**Beth Larabee** | Marketing and Food Systems Program Assistant through June

**Blue Maas** | Secretary (bluemaas@iastate.edu)

**Laura Miller** | Communications Specialist (lwmill@iastate.edu)

**Jeri Neal** | Ecological Systems and Research Program Coordinator (wink@iastate.edu)

**Rich Pirog** | Associate Director and Marketing and Food Systems Initiative Leader through April

**Malcolm Robertson** | Cross-Cutting Initiative Coordination and Outreach\* (malcolmr@iastate.edu)

Left: Row 1 (l to r): Irish, Lasley, Malanson, Jutz, Olthoff | Row 2 (l to r): Ehm, Steffen, Summerville, Gronau, Heley Lehman | Row 3 (l to r): Jackson, Colletti, Frieberg | Row 4 (l to r): Russell (for Hogberg), Wills



Below: Advisory Board  
at June 1 Retreat



# Leadership changes at the Leopold Center in 2010 - 11

July 2010: Lois Wright Morton, an ISU rural sociology professor, became interim director on the retirement of Jerry DeWitt, following an unsuccessful search for a permanent Center director in 2009.

February 2011: Rich Pirog, 20-year veteran Center staffer, announced his intention to join the staff of a new food systems center at Michigan State University. Pirog was hired as an education coordinator in 1990, and later became head of the Marketing and Food Systems Initiative and associate director. Craig Chase, an ISU Extension specialist, took on the Marketing and Food Systems Initiative coordinator duties. The associate director position was left vacant.

February 2011: Lois Wright Morton became project manager for a \$20M USDA Climate Cap grant involving 42 scientists from 10 land-grant universities and two USDA Agricultural Research Service institutions in nine states in the north central region.

The press of duties for managing this extensive project led her to step down as interim director of the Leopold Center.

March 2011: Mark Honeyman, coordinator of the Iowa State University Research Farm system, was appointed as interim director of the Center beginning March 7 to serve until a new director is chosen. Honeyman has a long history with the Center, having served on multi-disciplinary issue teams in the era of Dennis Keeney, the Center's first director. He has received numerous grants for research connected to sustainable livestock production and was a leader of the Center's "Hoop Group" that studied hooped houses for hogs. Honeyman has coordinated ISU's Research and Demonstration Farm network for 26 years. He recently was named associate director of ISU's BioCentury Research Farm. In 2008 he led the creation of the university's compost facility, which turns campus and farm wastes into compost and amended soil.

June 2011: Iowa State University announced the formation of a committee to conduct a nationwide search for the next director of the Leopold Center. Four advisory board members (Jennifer Steffen, Bill Ehm, Dan Frieberg and Keith Summerville) and five ISU representatives were appointed to serve on the committee, headed by Sharron Quisenberry, ISU Vice President for Research and Economic Development. Applications for the position were due October 1, 2011 with interviews to be conducted in late 2011.



# Finances

To provide more transparency, the format of the financial statements in this annual report has been changed and additional information provided. The state Agriculture Management Account (AMA) receipts are presented on an accrual basis, staff leveraged external grants and projects receipts and expenses are included, and the competitive grants and grant infrastructure funds expended include only the cash paid out during the year (not the amount awarded). The beginning balance at July 1, 2009 has been adjusted for the additional types of accounts now included, as well as the unspent balance of existing grants.

## Leopold Center for Sustainable Agriculture by the Numbers

Programs	FY2009	FY2010	FY2011
Active grants	98	96	89
New grants	52	44	33
Number of pre-proposals received	62	54	54
Active working groups	6	9	10
Iowa counties with active projects	34	52	58
Principal investigators	74	74	67

### Outreach

Publications (papers, books, etc.)	41	15	25
Website unique visitors (monthly average)	17,129	16,936	16,388
Website page activity (monthly average)*	67,186	75,857	80,873
Educational events	236	39	179

\*page visits and PDFs viewed

### Center Stats

Employees	12	12	10
Interns/students	12	15	10

## For the Years Ended June 30, 2011 and 2010

	2011	2010
<b>Funds Received</b>		
State AMA Receipts	\$1,584,737	\$1,658,429
ISU Allocations	440,861	439,945
Foundation Funds	149,361	173,316
Staff Leveraged External Grants and Projects	223,574	260,572
Incentive/Discretionary Accounts	1,324	0
<b>Total Funds Received</b>	<b><u>2,399,857</u></b>	<b><u>2,532,262</u></b>
<b>Funds Expended</b>		
Personnel	822,895	764,038
Operations	196,766	166,391
Competitive Grants & Grant Infrastructure:		
Ecology Initiative	614,399	396,063
Policy Initiative	141,189	86,969
Marketing Initiative	504,357	422,669
Cross-Cutting Initiative	250,794	248,429
Monthly Competitive Education Program	4,600	0
Total Competitive Grants & Grant Infrastructure	1,515,339	1,154,130
Foundation Accounts	43,250	6,914
Staff Leveraged External Grants and Projects	284,200	327,099
<b>Total Funds Expended</b>	<b><u>2,862,450</u></b>	<b><u>2,418,572</u></b>
<b>Increase/(Decrease) in Funds</b>	<b>(462,593)</b>	<b>113,690</b>
<b>Funds, Beginning of Year</b>	<b><u>2,929,934</u></b>	<b><u>2,816,244</u></b>
<b>Funds, End of Year</b>	<b><u>\$2,467,341</u></b>	<b><u>\$2,929,934</u></b>
<b>Competitive Grants AWARDED by Initiative</b>		
Ecology	\$582,055	\$571,830
Policy	0	25,000
Marketing	208,691	487,551
Cross-Cutting	481,397	97,000
<b>Total</b>	<b><u>\$1,272,143</u></b>	<b><u>\$1,181,381</u></b>

# Distinguished Fellow Fred Kirschenmann gives voice to sustainable agriculture ideas

Fred Kirschenmann continues to serve the broader cause of sustainable agriculture in many ways, through his position as Distinguished Fellow at the Leopold Center and via his work at the Stone Barns Center for Food and Agriculture in Pocantico Hills, New York.

The Agriculture of the Middle Project, which has long been a keen interest for Kirschenmann, has led him to work with former Leopold Center advisory board member Jim Penney on a possible project with Iowa meat goat producers. The Ag of the Middle group is working with Whole Foods Market to establish a more formal relationship with Ag of the Middle producers — including those from Organic Valley, Shepherds Grain, Natural Country Beef and others. He also has been consulting with Practical Farmers of Iowa to explore aggregation possibilities with PFI producers.

Kirschenmann was among a small group of sustainable agriculture leaders who met privately with Great Britain's Prince of Wales in Washington, D.C. on May 4. Prince Charles, an organic farmer and longtime supporter of sustainable agriculture, gave the keynote address at a Future of Food conference hosted by the *Washington Post* at Georgetown

University. Videos and other materials from the event are posted at [www.washingtonpostlive.com/conferences/food](http://www.washingtonpostlive.com/conferences/food).

Fred spends half of his time engaged with the expanding programs at Stone Barns Center. They now host over 100,000 visitors each year and provide education in food and agriculture issues to more than 10,000 children in varied educational programs. Stone Barns promotes opportunities for new farmers with well over 200 young farmers attending the annual young farmer conference, numerous workshops for beginning farmers in livestock and horticulture production systems, and consultations with beginning farmers.

Kirschenmann remains active on the boards of directors for Whiterock Conservancy, the Center for Regenerative Society, Organic Seed Alliance, International Certification Services, and Stone Barns. He is a member of the editorial boards for the *Journal of Sustainable Agriculture*, *Renewable Agriculture and Food Systems Journal*, and *In Context*. He serves on several advisory boards, including the University of New Hampshire's new Eco-Gastronomy major program. At ISU, Fred is part of the degree committees for two Sustainable Agriculture graduate students.

Right: His Royal Highness Charles, Prince of Wales, with Fred Kirschenmann



Photo Courtesy of Washington Post Live

Fred gave 24 presentations this year, 11 of them keynote addresses to agricultural and sustainability groups. Among them were presentations at Grinnell College, Drake University, and the University of Iowa. He also spoke at Yale University, Tufts University, University of Oregon, Woodrow Wilson International Center, Virginia Tech University, University of Portland, Massachusetts Institute of Technology, Harvard, and Kendall College.



Above: Future of Food Conference, Kirschenmann (third from the right)

## Publications by Kirschenmann from July 1, 2010 to June 30, 2011:

- 1) "Animal Welfare in the Context of Ecological Sustainability," in W.G. Pond, F.W. Bazer and B.E. Rollin (eds) 2011, *Animal Welfare in Animal Agriculture: Husbandry and Stewardship in Animal Production*. Taylor and Francis Publishers.
- 2) "The Complexity of Insuring Global Food Security," 2011. Published in *Seule la diversite cultivee peut nourrie le monde*.
- 3) "Rethinking the Politics of Food," 2010. *Journal of Sustainable Agriculture*, July 2010.

# Spencer Award for 2010 goes to Audubon farm couple

Vic and Cindy Madsen, who operate a successful, sustainable 320-acre family farm near Audubon, were selected to receive the 2010 Spencer Award for Sustainable Agriculture. When he accepted the award, Vic Madsen said simply, "I hate to admit that it took me 40 years to learn this: the simple idea that things go better when you don't fight nature."

The Madsens began as 4-H kids who loved raising livestock in hilly western Iowa. They have been doing on-farm research with Practical Farmers of Iowa for nearly 25 years, and worked with the late ISU professor Fred Blackmer to set up the most accurate tests possible. The Madsens have been active in delivering farmer-to-farmer programming on a number of sustainability issues. Their farm was part of the first Conservation Security Program sign-up in 2002, achieving Tier 3 (highest level) acceptance, an indication of their strong commitment to preserving natural resources.

The Madsens received the Spencer Award for Sustainable Agriculture from Susan Jutz, Center advisory board member, at the January 7, 2011 annual meeting of Practical Farmers

of Iowa at Marshalltown Community College. The Madsens were selected by a committee of Elaine Spencer (representing the family), Fred Kirschenmann (from the Center staff) and advisory board members Laura Jackson, Dan Frieberg, John Sellers, Jr., and Jennifer Steffen. Since 2002, the award has commemorated the beliefs, innovations and stewardship of Norman and Margaretha Spencer, who farmed near Sioux City for 40 years. They believed that it is the obligation of each generation to leave the world a better and healthier place for the next generation.



Far Left: Cindy and Vic Madsen on their farm

Left (l to r): Cindy Madsen, Vic Madsen, Susan Jutz, Lois Wright Morton

# Gene Takle



Right: Gene Takle



## Climate change is focus of 2011 Shivvers Lecture

“Will Climate Change Impact the Sustainability of Iowa Farms?” Iowa State University professor Gene Takle addressed this provocative issue at the annual Shivvers Memorial Lecture on February 6. His chief message was that Iowa farmers have begun to deal with the varied effects of climate change, and they’ll be required to make even more adjustments in their operations to adapt to more extreme climate changes that are coming. He warned that sustaining agricultural production levels without depleting natural resources will be increasingly difficult in the future as climate instability escalates.

Takle, who has a dual appointment in ISU Agronomy and ISU Geological and Atmospheric Sciences, described some of the current and future threats to sustainability of resilient landscapes in the state. He reported how Iowa farmers have begun coping with such phenomena as longer growing seasons, wetter springs and summers, fewer extreme heat

events, higher humidity and drier autumns. The frequency of intense rain events associated with climate change has led to soil erosion and affected water quality, both on farms and in Iowa cities that experienced flooding several times in the last 15 years. His presentation can be viewed at [www.leopold.iastate.edu/news/calendar/shivvers](http://www.leopold.iastate.edu/news/calendar/shivvers).

Takle also is the director of Iowa State’s Climate Science Program and a member of the Iowa Climate Change Impacts Committee that submitted its report to the Iowa Legislature in January 2011. The report details the impact of climate change in Iowa. (See [www.energy.iowa.gov](http://www.energy.iowa.gov))

The Shivvers lecture has been presented at ISU since 1969 in memory of John Shivvers, who farmed near Knoxville. The lectures focus on ways that agriculture can sustain rather than destroy natural resources and was endowed by the Shivvers family.

# Value Chain Partnerships project ends, yields benefits for participants

An innovative program that brought together participants all along the food chain, from farmers to consumers to everyone in between, came to a close in 2011. It was launched in 2002 with funds from the W. K. Kellogg Foundation and matching support from the Leopold Center and Iowa State University. In 2006, additional monies were received from the Wallace Center for Sustainable Agriculture. Six working groups were included under the VCP umbrella at the conclusion of the project:

- Pork Niche Markets
- Regional Food Systems
- Farm Energy Working Group
- Fruit and Vegetable
- Food Access and Health
- Grass-based Livestock

The VCP working groups were guided by the community of practice model — providing a common meeting point for people who share similar concerns and want to increase their knowledge and expertise by interacting on a continuing basis. These and former working groups and their local partners collectively have leveraged more than \$2 million, along with many hours of in-kind time, to support their efforts while involving more than 650 individuals in their work.

The Regional Food Systems Working Group was particularly successful in increasing county involvement in local food system establishment and expansion. From 2006-2008, four of the participating local groups covering 27 Iowa counties collectively increased their local food sales by nearly

Regional Food Systems Working Group  
(16 groups in 83 of Iowa's 99 counties)



\$1 million. These groups also noted substantial upticks in the number of producers selling local food to local businesses, the number of local businesses buying and selling local food, and the amount of seed money the group provided to local residents and food-based businesses.

Following the spring 2011 departure of Rich Pirog and Beth Larabee, who led the Value Chain Partnerships project under the auspices of the Center's Marketing and Food Systems Initiative, Craig Chase was charged with shepherding the various working groups through their transition from Leopold Center facilitation to self-governance or independent operations.

# Leopold Center funds two new ISU horticulture positions

An ISU Extension horticulture field specialist and an assistant professor of horticulture were hired with an infusion of funding from the Leopold Center endowment holdings. Both are slated to work with food crop production as part of the push for additional local food systems research and education in ISU's College of Agriculture and Life Sciences. The Center will play a role in shaping the work plans and assessing the performance of these two positions within the local food systems milieu.

Joe Hannan began work as the horticulture field specialist assisting commercial fruit and vegetable growers in central and western Iowa. He is based in the Dallas County Extension office in Adel and will co-lead the Fruit and Vegetable Working Group.

Ajay Nair, a new Ph.D. from Michigan State University, was chosen for the professorship dealing with large- and small-scale growing of horticultural food crops (mainly vegetables). His ISU appointment is 60 percent extension, 30 percent research and 10 percent teaching.



Left: Hannan  
Right: Nair

They also keep track of how many pounds of nitrogen their farm produces...

## Learning from livestock production in New Zealand

Mike and Sharon Barton can tell you how many cattle – and pounds of beef – they raise every year on their 350-acre farm in northern New Zealand. They also keep track of how many pounds of nitrogen their farm produces, because they (along with 100 other farmers in their area) operate under a nitrogen cap. The cap aims to limit nitrogen produced by agricultural systems because the region's porous, volcanic soil funnels excess nutrients into groundwater and directly into the country's largest lake and one of its favorite tourist attractions. The cap limits Barton's stocking rate, production and his income because New Zealand dropped its farm subsidies in the 1990s.

The Bartons traveled to Iowa in January to share their experiences and learn ways to add value to their products through market branding. Mike Barton gave the keynote speech at the Practical Farmers of Iowa annual meeting, which received a grant from the Leopold Center's Competitive Educational Support Program to pay a portion of the couple's travel costs. The couple also met with members of the Grass-Based Livestock Working Group and Leopold Center staff.



Below: New Zealand's North Island



# Workshop

## Participants discuss how to help agriculture weather changes

The twin concepts of sustainability and resilience were the focus of a workshop sponsored by the Leopold Center on May 25 at the Gateway Hotel and Conference Center in Ames. Current and future grantees of the Leopold Center were invited to attend and learn how to measure their efforts at incorporating these qualities into proposed research work. Twenty-one posters from past Leopold Center projects offered examples of how these concepts already have played a key role in successful research and education programs funded by the Center.

Keynote speaker David Mortensen, a weed ecologist from the Pennsylvania State University, outlined the practical applications of sustainability and resilience goals to agriculture. A lively panel on “Measuring Sustainability and Resilience in Iowa” included advisory board member Laura Jackson, professor of biology, University of Northern Iowa; Matt Liebman, professor of agronomy, Iowa State University; Richard Sloan, Lime Creek watershed, producer, Rowley; Bahia Barry, local food coordinator, Golden Hills RC&D, Southwest Iowa Food and Farm Initiative, Oakland; and Richard Leopold (moderator), the Midwest Region’s Assistant Regional Director for Science Applications, U.S. Fish and Wildlife Service.

In the afternoon, a small group exercise for the attendees was led by Corry Bregendahl, who conducts evaluations for the Leopold Center. They were asked “How can we measure the sustainability and resilience of our projects?” and then compiled answers to the question based on their work and discussions. Results of this exercise were collected and shared with the participants after the workshop.

For more about the Sustainability and Resilience Workshop, see the videos at [www.leopold.iastate.edu/news/calendar/2011-05-25/measuring-sustainability-and-resilience-workshop](http://www.leopold.iastate.edu/news/calendar/2011-05-25/measuring-sustainability-and-resilience-workshop).



Far Left: Corry Bregendahl works with two participants on their logic model

Left: Craig Chase (second from the right) takes notes for his group

# Iowa Local Food and Farm Plan Created

At the end of the 2010 session of the Iowa legislature, the Leopold Center was charged with preparing an Iowa Local Food and Farm Plan (ILFFP) by the beginning of the next session in January 2011. Rich Pirog, then program leader for the Marketing and Food System Initiative, led the six-month campaign to gather information and generate recommendations from local food stakeholders and other interested Iowans and distill this collection into a concise, readable document for the legislators. Nearly all Leopold Center staffers were involved in the preparation of the report at some point, along with Juli Obudzinski (Tufts University intern) and Judd Jensen (Drake University agricultural law student).

Two surveys were conducted along with 15 listening sessions in all parts of the state. More than 1,000 people in 95 of Iowa's 99 counties were involved in the process. ISU economist Dave Swenson provided economic impact research to inform the writers of the plan about the financial implications. The ILFFP core team (Pirog, Beth Larabee, Corry Bregendahl, Jonah Brown-Joel, Obudzinski and Jensen) synthesized the survey and listening session data into 12 key issues. These issues and resulting feedback data were used as a basis to draft recommendations for the Iowa Local Food and Farm Plan.

Pirog and ISU administrators met with state agencies, state-funded educational institutions and farm groups in late November to review the draft plan and get feedback before completing the actual writing. The Leopold Center staff edited and designed the 63-page document that contained 34 recommendations, including creation of a state-level local food and farm program, education and training for producers and local food businesses, changes in state policy to benefit local food businesses, and data collection to track growth of local food sales. (See [www.leopold.iastate.edu/content/iowa-local-food-and-farm-plan](http://www.leopold.iastate.edu/content/iowa-local-food-and-farm-plan))

Ann McCarthy, ISU legislative liaison, assisted in the release of the plan to the Iowa legislature on January 7, 2011. The Iowa Local Food and Farm Plan was unveiled to the public on January 20 at a media event in conjunction with a Regional Food Systems Working meeting. The briefing was held at the Hy-Vee Conference Center in West Des Moines with more than 130 people and 10 different media representatives participating. Pirog presented the plan to the Iowa Senate Ag Committee and House Ag Committee and continued to field questions about the ILFFP until his departure.

In June one of the plan's key recommendations — hiring a state local food coordinator for Iowa — was included in the state's Agricultural and Natural Resources budget for 2011-2012. The one-year funding commitment to the position from the state legislature reflected the bipartisan support for local food efforts.

Below: Johnice Cross,  
Coordinator of  
GROWN Locally



Panel of Hy-Vee officials meeting with growers and other members of the Regional Food Systems Working Group at a January 20 session on how to market to their stores



# Wallace Chair program continues ecological processes investigations

The Henry A. Wallace Chair for Sustainable Agriculture, currently held by ISU Agronomy professor Matt Liebman, annually receives \$20,000 of support from the Leopold Center. It will continue to be part of the Center's research portfolio based on a memorandum of understanding negotiated in 1997.

Liebman's current research, outreach and teaching activities focus on ways to use ecological processes to reduce dependency on agrichemicals and fossil fuels. The Wallace Chair program is investigating (1) use of perennial crops and prairie species as biofuel feedstocks; (2) weed suppression by diverse crop rotations and rodents and insects that consume weed seeds; (3) nutrient cycling in integrated crop-livestock systems; (4) energy costs and economic returns associated with simple and diverse rotation systems; and (5) dynamics of native plant communities in filter and buffer strips constructed in and around corn and soybean fields. For more details, see [www.wallacechair.iastate.edu](http://www.wallacechair.iastate.edu).

In 2010-2011, Leopold Center funds administered by the Wallace Chair were used to provide a stipend, tuition, fees and benefits for two graduate students for whom Liebman serves as major professor. Sarah Hirsh is pursuing an MS in Sustainable Agriculture and Ecology and Evolutionary Biology. She also receives \$12,500 in supplemental funding from the ISU agronomy department. Ranae Dietzel is pursuing a Ph.D. in Sustainable Agriculture and Agronomy (Crop Production and Physiology).



Comparison of biofuels (COBS) project, ISU Agronomy Farm

Hirsh's research focuses on vegetation dynamics in cropping systems utilizing perennial buffer strips within the STRIPS experiment being conducted at the Neal Smith National Wildlife Refuge near Prairie City. (The Center currently funds faculty research efforts in the same experiment at the Neal Smith site.) Hirsh's project identifies the species composition and the relative abundance of different plants in buffer strips, with special attention to the conservation of native plant species. She also is gauging the extent to which weeds within the buffer strips migrate into the crop portion of the field. Early results of her studies indicate that the species richness in a watershed dramatically increased with the addition of prairie buffer strips. Evidence also indicates that adding prairie strips does not create a weed problem within the crop plots.

Dietzel's research compares carbon cycling in corn- and prairie-based biofuel cropping systems to determine which systems will remove the most carbon from the atmosphere while adding the most carbon to the soil. Work conducted during the last year included measuring and analyzing root growth, developing a model to help determine how much carbon is lost from the systems, and calibrating a model to simulate biogeochemical processes at the research site. Results from the study indicate that prairie-based biofuel cropping systems utilized more of the growing season and produced a greater amount of underground biomass for carbon sequestration.



Matt Liebman



Sarah Hirsh



Ranae Dietzel

Photos Courtesy of Matt Liebman

# Students in ISU sustainable ag graduate program receive Center funding



The Teaching Assistantship award was given to Drake Larsen, an MS student in Natural Resource Ecology and Management, advised by Lisa Schulte-Moore. He was hired on a short-term appointment to provide teaching support to SUSAG 509, Agroecosystems Analysis, the GPSA's core course. In this position, Drake assisted in planning and organizing the two-week field trip, participated in the trip, facilitated student discussion groups, and assisted the instructors with other activities as needed.

Photos Courtesy  
of Charles Sauer

The Graduate Program in Sustainable Agriculture (GPSA) at ISU used Leopold Center dollars to fund one teaching and three research assistantships in 2010-11. This is part of the continued Leopold Center support for education of graduate students in this unique program.

The FY2011 Research Assistantship awards went to these three individuals.

**John Dean, MS-MCRP, Community and Regional Planning**  
Faculty Advisor: Carlton Basmajian

Dean transcribed interviews for a state-funded project examining local housing authorities. He also conducted research examining the role of food systems within the community and regional planning profession. Dean had the opportunity to learn about urban food systems while working with the inner-city non-profit organization, No More Empty Pots in Omaha, Nebraska. There he collaborated with other organizations, making connections, and strengthening relationships in an effort to build a more efficient organization.

**Nicholas Leete, MS, Natural Resource Ecology and Management**  
Faculty Advisor: Richard Schultz

Leete worked with the Iowa Department of Agriculture and Land Stewardship on a project to monitor and improve water quality in Onion Creek in Boone and Story counties. He has coordinated with IDALs officials to survey the entire length of Onion Creek and its tributaries to determine the percentage of eroding stream banks; set up a water sampler to determine indicators of water quality, including sediment, phosphorous and nitrogen levels; and begun installing and measuring randomized plots to measure the rate of erosion on stream banks and its causes.

**Annie Thompson, MS-MCRP, Community and Regional Planning**  
Faculty Advisor: Carlton Basmajian



Thompson has been conducting research on empowerment in the climate change movement. She spent time in Southern Appalachia, interviewing members of community-based climate change organizations about how being a part of a group helped them to take action on climate change issues, both in changing their individual actions and in bringing about change on a broader social level. Her hope is that the research will help climate change advocacy groups to better understand the individual empowerment process and to demonstrate how these groups can specifically assist in that process.

# Practical Farmers of Iowa engages Iowa farmers with Center funding

The long-term collaboration between Practical Farmers of Iowa (PFI) and the Leopold Center underwent some changes this year as administration of the funding was moved to the Cross-Cutting Initiative in early 2011. With the support of \$25,000 in Leopold Center strategic investment funding that ended December 31, 2010, Practical Farmers of Iowa (PFI) was able to make progress on these activities:

## On-farm research and demonstration projects

Seventy-two PFI members conducted 100 on-farm research and demonstration projects through PFI's Cooperators' Program during this period. Among the subjects studied:

- Poultry nutritional composition testing
- Breeding corn for sustainable agriculture
- Farming systems' effect on water infiltration and soil quality
- Cover crop effect on following cash crop
- Seeding cover crops using high clearance equipment and planes
- Testing new cover crop species and their effect on weeds
- How to control Canada thistle with cover crops
- Cover crop effect on soil quality and water infiltration
- Grazing cover crops
- Comparison of aphid-resistant and susceptible soybean varieties
- Energy produced and consumed in different cropping systems
- Designing on-farm research tools for graziers
- Documenting local food consumption
- Measuring production from season extension
- Flea beetle control in eggplants

## Twenty PFI Field Days

Between July 1 and December 31, 2010, PFI held field days on these topics:

- Transitioning Cropland to Pasture
- Constructing a Moveable High Tunnel
- Weed "Appreciation"
- Scheduling Crops for Storage
- Urban Garden Tour
- On-Farm Poultry Processing
- Challenges of a CSA in Rural Areas
- Community-to-Ag Links/Cover Crops in Veggie Plots
- Improving Open-Pollinated Corn
- Cattle Grazing and Goat Browsing to Increase Biodiversity
- Art and Agriculture
- Tales from a Beginning Pasture-Based Livestock Farm
- Biodiesel: Basics and Beyond
- Organic Row-Crop in Northwest Iowa
- Wildlife and Grazing Tour
- Bioenergy: Educating for Sustainability
- Model of a Successful Mid-Sized Farm
- Garlic Fest
- Agroforestry Permaculture for Iowa
- Small Farms Tour

Right:  
Tom Cory of PFI

## Preparation for 2011 Cooperators' Meeting

Preparations were made for the 2011 Cooperators' Meeting (February 10-11) by identifying topics and speakers of interest to the participants. Staff finished collecting data from farmers, analyzed that data, and prepared research reports to share at the meeting.

## PFI Farmers in the media, on the PFI website, and in other PFI publications

PFI published two issues of its quarterly newsletter, *The Practical Farmer*, between July 1 and December 31, 2010, which contained results from research projects. Those results were featured prominently on the PFI website as well. Radio coverage on 250 newscasts covered PFI programming and accomplishments.



### Planning for 2011 PFI Annual Conference

Starting July 1, PFI began preparing for the 2011 annual conference which was held on January 7-8. PFI staffers solicited feedback on desirable conference topics and speakers, set an agenda, contacted speakers and made travel arrangements, prepared an annual conference brochure, mailed that brochure, and began processing registrations. The 2011 conference featured research conducted in the PFI Cooperators' Program as well as innovative ideas and experts and major networking time for beginning farmers and their mentors.

# SALT project wraps up with new website and outreach

The Drake University Agricultural Law Center completed the final year of the original Sustainable Agricultural Land Tenure (SALT) Initiative which was supported by funding from the Leopold Center's Policy Initiative and the former strategic investment program. The goal of SALT was to examine the impacts of land tenure trends and policy on the sustainability of Iowa's landscape through interviews; the examination of an inventory of legal documents affecting land tenure; and research on relevant local, state, and federal policy.

This last year's activities were focused on putting the SALT research to work by producing a variety of outreach resources for landowners, farmers, and their advisors. These resources are available at the SALT-developed website on-line since March, [www.sustainablefarmlease.org](http://www.sustainablefarmlease.org). Materials geared primarily to landowners and farmers include "The Landowner's Guide to Sustainable Farm Leasing," an interactive question and answer program to help landowners determine priority areas, a "Sustainable Farm Lease Quick Reference Guide," and several educational videos covering topics such as Iowa's land tenure and stewardship policy, Iowa farm lease termination law, leasing land to new small farmers, conservation easements, and timber management.

### The SALT Initiative produced two legal publications in FY 2011 in the *Drake Journal of Agricultural Law*.

- "Soil Carbon Offsets and the Problem of Land Tenure: Constructing Effective Cap and Trade Legislation" by Keith Duffy, and
- "A Lease-based Approach to Sustainable Farming, Part I: Farm Tenancy Trends and the Outlook for Sustainability on Rented Land" by Ed Cox.

Findings from the SALT project were shared in presentations to landowners, farmers, and their advisors. Ed Cox, a fellow at the Drake Agricultural Law Center, presented information derived from the SALT Initiative at the American Agricultural Law Association's Annual Symposium in Omaha, Nebraska;



Ed Cox  
Staff Attorney

Missouri Bar Association Real Estate Seminars held in St. Louis, Independence, and Springfield, Missouri; and the Mills Legacy Landowner's Meeting in Malvern, Iowa.

The Initiative has spurred further collaboration between organizations and agencies working on sustainable land tenure issues in Iowa and around the country. With continued support from the Leopold Center, the Drake Agricultural Law Center is facilitating a Land Tenure Policy Working Group to harness this momentum and promote additional sustainable land tenure policy projects.

The Leopold Center has supported organic research, extension and education at ISU's research farms and on cooperators' farms since 1997.

# Consistent Center support benefited ISU organic research

The ISU organic agriculture program is managed by Kathleen Delate of the ISU horticulture and agronomy departments and Cynthia Cambardella of the USDA National Laboratory for Agriculture and the Environment with assistance from graduate students. (See <http://extension.agron.iastate.edu/organicag/>) The Leopold Center has supported organic research, extension and education at ISU's research farms and on cooperators' farms since 1997. During the first half of FY2011, the program received support from the Center's strategic investment fund, and in the second half of the year was moved to the Cross-Cutting Initiative portion of the competitive grants program.

## Projects with Center support in FY2011 included:

### At Greenfield, Neely-Kinyon Farm

- Comparison of organic and conventional crops, Long-Term Agroecological Research (LTAR) site
- No-till organic corn
- Organic cover crops, compost and mulch for organic vegetables
- Disease management of organic grapes
- Management of soybean staining disease and soybean aphid in organic soybeans
- Organic fertility treatments for organic soybeans

### At Crawfordsville, ISU Southeast Research Farm

- Organic barley variety trial

### At Jefferson, Shriver Farm

- Organic nutrient management

### At Gilbert, ISU Horticulture Farm

- Performance and greenhouse gas emissions from organic vegetable production using cover crops, compost and no-till

This year featured a particular emphasis on no-till systems for organic production. The concept of no-till or reduced tillage has been proven to provide multiple environmental benefits on conventional farms—particularly in the area of soil conservation. On organic farms, no-tillage systems have been constrained by the prohibition of herbicides to curb non-crop vegetation.

The Rodale Institute pioneered a no-till roller/crimper which can be used to terminate cover crops in organic systems. Research so far has determined that organic soybean and tomato crops can be successfully produced in the organic no-till system, with yields equal to tilled organic systems, but with half the weed management costs. Challenges currently under investigation include moisture competition between crop and terminated cover crop mulch and incomplete termination of cover crops in wet years in the no-till system, which curtails its use for organic corn crops.

### Long-Term Agroecological Research

The Neely-Kinyon LTAR site was established in 1998 as a 17-acre, designated long-term study site, supported by the Leopold Center, to examine the long-term effects of organic production in Iowa. Now in its thirteenth year, the LTAR site is internationally known as one of the longest running comparisons of conventional and certified organic crops.



Above: Transplanting lettuce into rolled cover crop of hairy vetch/rye in organic no-till system



# Rolling & Planting

Kevin Martin (right) of ISU Dining Services receives a shipment of organic lettuce from the Neely-Kinyon plots (above)

## Extension/outreach for organic crops research

- Presented research results to 1,835 participants through 32 research and extension presentations in Iowa and other states
- Wrote grant proposals and received funding for \$850,000 to expand organic vegetable rotation research and extension activities
- Organized and held the Tenth Iowa Organic Conference on November 22, focusing on organic production, policy, and marketing, with 20 speakers and an all-organic meal for 220 participants
- Presented research results at three Field Days at research stations and on-farm research sites (ISU Horticulture Farm's All-Horticulture Field Day, Neely-Kinyon Farm Field Day and the Upper Midwest Organic Tree Fruit Network Field Day, Decorah) addressing organic grain, hay, vegetable and fruit crops research, reaching an audience of 132 producers and agricultural professionals

- Extended research results to producers, agricultural professionals and consumers through publication of 11 Extension reports posted on the ISU Research Farms website, the ISU Organic Ag website, and/or on the USDA-Organic Agriculture Consortium (OAC) national OrganicAgInfo website

## Refereed publications on organic research

- Romero, F., K. Delate, D. Hannapel, P. Murphy, and L. Liu. Horticultural and biochemical variations due to seed source and production methods in three Echinacea species. *Journal of Herbs, Spices & Medicinal Plants* 16:167-192.
- Wiltshire, K., K. Delate, J. Flora, and M. Wiedenhoef. 2010. Sociocultural aspects of cow-calf persistence in a peri-urban county in Iowa. *Renewable Ag. & Food Systems*.
- Wiltshire, K., K. Delate, M. Wiedenhoef, and J. Flora. 2010. Incorporating native plants into multifunctional prairie-pastures for organic cow-calf operations. *Renewable Ag. & Food Systems*.



# Ecology Initiative

The Ecology Initiative activities for the year were led by Jeri Neal, with assistance for the first half of the year from Phil Damery, an ISU sustainable agriculture graduate student, and ISU MBA student Jonah Brown-Joel, in the final six months.

Initiative coordinator Jeri Neal explained the initiative's focus: "In short, we're about more roots in the ground and more farmers on the land – a 'long haul' vision that combines agricultural projects focused on both doing it better and doing it differently." New grants research this year focused on how different agricultural systems function within their surrounding environment.

## Outreach

A key communications tool to help people understand the research being done by the Ecology Initiative is "On the Ground with the Leopold Center." (See [www.leopold.iastate.edu/news/on-the-ground](http://www.leopold.iastate.edu/news/on-the-ground)) These short videos introduce the investigators, and explain current progress in their work and their ideas of how this relates to sustainability. Six videos providing research updates were filmed and launched this year and are posted on YouTube.

A meeting for Ecology grantees was held October 18 at the Iowa Arboretum near Luther. The gathering was a well-received first attempt to facilitate improved knowledge and networking among grantees, as well as between grantees and the Center, and offered a potential step toward formation and growth of additional ecology working groups.

In March, the initiative hosted a community education event, Ames Reads Leopold, featuring the Iowa premiere of *Green Fire*, a new documentary about Aldo Leopold's life. The film, covering Leopold's view on land ethics and how he chose to implement those ideas in his everyday thinking, was screened for an audience of nearly 150. Excerpts from *A Sand County Almanac* were read aloud. The Ames event, along with similar celebrations in other communities during the first weekend in March, allowed people to hear Leopold's writings and renew their commitment to his vision.

## Ecology multi-year working groups and research teams

The Ecology Initiative working groups and research teams are a critical part of putting specific research questions into the larger picture of practices:

- how would this work on a real-life scale,
- what opportunities does it create for improved environmental and economic performance, and
- what are the tradeoffs and costs of doing things differently?

For researchers, the working groups and research teams are critical for building baseline knowledge and collaborations. These connections increase their competitiveness in leveraging Leopold "seed money" to acquire the larger grants needed to run systems-oriented research (such as the landscape biomass team).

For farmers, the working groups and research teams can be an avenue for building tools that reflect the on-the-ground reality of adopting a practice (such as cover crops and multi-year low external input rotations). At regional and national scales, the agroforestry working group links researchers across universities and agencies to encourage policies and language to support and engage agroforestry as a viable part of agriculture.



A working group includes stakeholders from different groups and/or backgrounds who collaborate around a common topic or need.

Some examples:

Iowa Cover Crops is part of the Midwest Cover Crops Council, a working group affiliated with part of the Green Lands, Blue Waters consortium. The mission of the MCCC is to significantly increase the amount of continuous living cover on the upper Midwest's agricultural landscape. The group (with leadership from Practical Farmers of Iowa's Sarah Carlson and Tomoko Ogaway) developed a *Cover Crops Business Directory* that lists sources for seed, custom spraying and aerial application and equipment for cover crops.

Green Lands, Blue Waters (GLBW) is a regional working group that supports development of and transition to a new generation of agricultural systems in the Mississippi River Basin. These systems integrate more perennial plants and other continuous living cover into the agricultural landscape. The group is a consortium of land-grant universities and agricultural, environmental and rural development non-profit organizations throughout the Mississippi River watershed ([www.greenlandsbluewaters.org](http://www.greenlandsbluewaters.org)).

Grass-Based Livestock Working Group boosts the vitality of the grass-based livestock industry in Iowa by supporting diverse groups of passionate practitioners and outreach professionals who are willing to share knowledge and work toward sustainability.

Mid-American Agroforestry working group provides a framework for advancing the science, practice and adoption of agroforestry by landowners and natural resource managers in the U.S. Midwest region.

A research team refers to a group of researchers (often from different fields) that collaborates on a specific research question or set of closely related questions.

Examples are:

The Landscape Biomass research team develops, refines and implements a portfolio of sustainable bioenergy feedstock production systems that have net positive social, environmental, and rural economic impacts and are compatible with existing agricultural systems. The team is developing several alternative biomass cropping systems and comparing them to a conventional continuous corn system.

The Science-based Trials of Rowcrops Integrated with Prairies (STRIPs) research team (formerly known as the 'perennializers') is an interdisciplinary team of researchers, educators, and extension specialists who are targeting conservation practices in the conventional corn soybean landscape. They are investigating the impacts of strategically integrated strips of prairie within row-cropped agricultural landscapes by quantifying changes in ecological functioning and economic outputs resulting from the different configurations of perennial and annual plants. Research shows that this

Below: Aldo Leopold

Below Left: Leopold book and film





practice generates large improvements in environmental quality with only small changes in overall agricultural production.

The Patch-Burn Grazing research team explores approaches to the restoration of native grasslands and associated biodiversity within a working landscape. The target is a grazing and recreational land use system that is ecologically and economically viable, as well as socially acceptable.

### Soybean disease research

**SDS (Soybean Sudden Death Syndrome)** A research project set up in 2002 by Matt Liebman, ISU's Wallace Chair for Sustainable Agriculture and agronomy professor, compares two low-external-input (LEI) cropping systems with a conventional corn-soybean system. A cool, wet summer in 2010 resulted in a serious outbreak of SDS for which there is no effective treatment. Soybean plots in this project were an exception: crops in three-year rotations with corn, oat and red clover, and in four-year rotations with corn, oat and alfalfa, remained green into early September. Soybean plants in the two-year corn-soybean rotation suffered markedly from SDS, even though they were one row away from the healthier soybean plants. Ninety percent of the plants were infected by SDS in the two-year rotation while less than 10 percent were infected in the longer rotations.



Left: Lenor Leandro, ISU plant pathologist, examines SDS damage

### External grants

Outside partnerships complemented the program activities. Recent examples include collaborations with Iowa Learning Farms on the Conservation Station and people-to-people conservation narratives, and with the University of Iowa in studies about the complex modeling questions related to the roles of agricultural soil erosion, carbon cycles and climate change mitigation policy.

The Ecology Initiative used a special agriculture appropriation consisting of federal funding for hypoxia water quality-related work to partially support the Iowa cover crops working group and the Green Lands, Blue Waters multi-state working group. The hypoxia funding was obtained with the assistance of Senator Tom Harkin (D-IA) and members of his staff on the U.S. Senate Agriculture Committee. The cover crops work was carried out primarily through a partnership with Practical Farmers of Iowa to help farmers add cover crops on the ground.

# Marketing and Food Systems Initiative

The Marketing and Food Systems Initiative (MFSI) was directed by Rich Pirog for three-fourths of the year until his resignation. Craig Chase became interim leader of the initiative April 1. Program assistance was provided by Beth Larabee until April 15 when she left the Center and by Jonah Brown-Joel until December 31 when he shifted to work on the Ecology Initiative.

Among the key efforts of the Marketing Initiative during the year were work on competitive grants, coordination of working groups under the Value Chain Partnerships umbrella, and a variety of outreach and communications activities. Pirog and the Marketing Initiative staff took the lead in preparing the Iowa Local Food and Farm Plan for the Iowa legislature (see page 15).

## Among the publications produced through the Marketing Initiative:

- A research paper on “Life Cycle Assessment of Commodity and Niche Swine Production Systems in the Upper Midwestern United States”
- A revision of the local food resource directory for Iowa
- Spanish translations of the Iowa Local Food and Farm Plan summary and the Leopold Center information brochure
- Economic reports authored by ISU economist Dave Swenson on 1) impacts of fruit and vegetable production in Iowa metropolitan areas and 2) impacts of Iowa’s small meat processing facilities
- An updated and expanded Iowa Fruit and Vegetable Market Planner tool for the web

Right: Transplant facility, Grinnell (Iowa) Heritage Farm



## Value Chain Partnerships (VCP) Phase III

The VCP team conducted the last Community of Practice workshop April 14-15 in Ames for more than 40 participants from six states. This was the final commitment for a three-year Sustainable Agriculture Research and Education (SARE) Professional Development Program (PDP) grant. Craig Chase was in charge of subsequent 2011 VCP activities. Members of seven geographically based groups that are part of the Regional Food Systems Working Group met on March 31 in Ames to discuss the future of the working group. They were told about plans for their transition from Leopold Center coordination and assistance to independent operations by the end of 2011 and were surveyed about their experiences in the working group framework. Gretchen Zdorkowski was employed to help facilitate a discussion regarding the role of existing working groups in a potential expanded network of working groups beyond food value chains.

## Pork Niche Market Working Group (PNMWG)

The group discussed future options and analyzed a possible business plan at its 2010 meetings. ISU Value Added Agriculture Extension and the Iowa office of the National Center for Appropriate Technology (NCAT) may have key leadership roles in the group going forward, depending on how changes in federal funding affect the operations at NCAT.

### Regional Food Systems Working Group (RFSWG)

Funds received from the USDA-Rural Business Enterprise Grant (RBEG) technical assistance program were used to hire four consultants to help RFSWG groups with their future plans and activities. Each of the four consultants visited three to four local RFSWG groups in November 2010. A special RFSWG webinar on February 1 provided an overview and shared lessons learned from consultants in their Iowa experiences.

A February 7 meeting with Hy-Vee executives dealt with Hy-Vee's desire to buy more Iowa-grown foods. Following a special call for new RFSWG groups in February, three new groups were added in March 2011 (Quad City Food Hub, Greene County Local Food Working Group, Food and Farm Partnership including Calhoun, Pocahontas and Webster counties). Craig Chase worked with the RFSWG steering group on the remaining 2011 RFSWG meetings.

### Fruit and Vegetable Working Group (FVWG)

The group held an equipment field day at the Grinnell Heritage Farm on August 22. Joe Hannan, ISUEO commercial horticulture field specialist, began work on November 1 and became co-leader of the group (with Margaret Smith). At the November 30 meeting, members reviewed key challenges and issues for the group. Updates on ISU horticultural research were presented at the March 8 meeting.

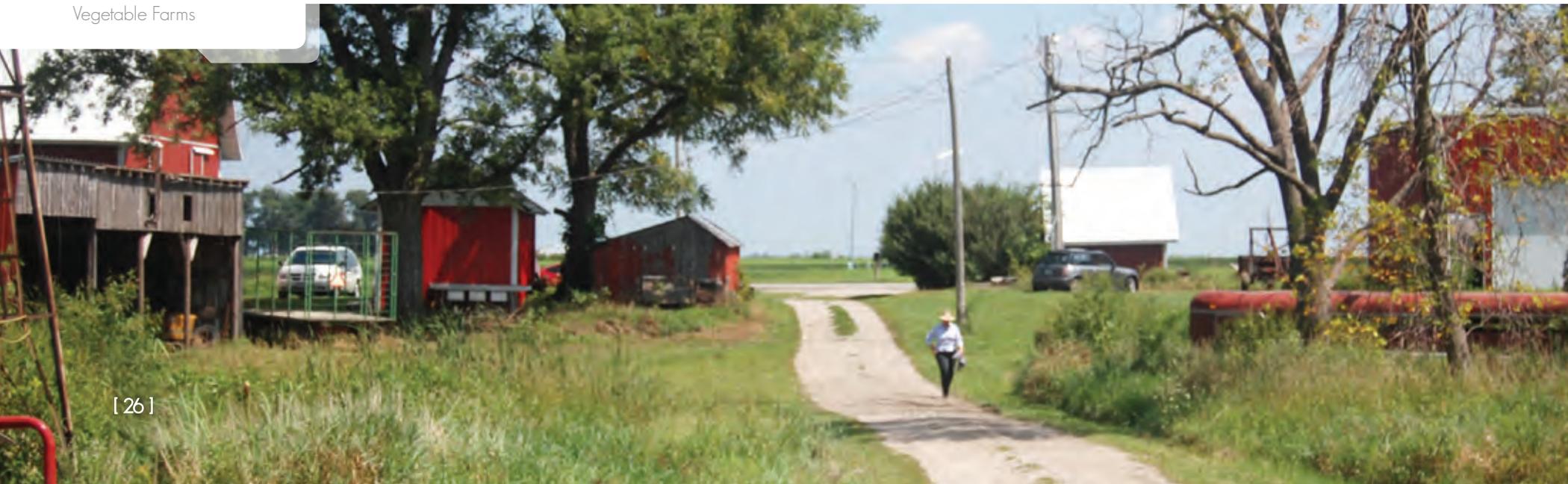
### Small Meat Processors Working Group (SMPWG)

Nick McCann completed graduate study work on how to increase profit of small meat processors through better management of constraints. Arion Thiboumery completed his project work with Iowa small meat processors. This working group will no longer meet as a unique entity.

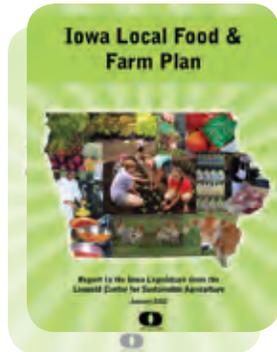
### Food Access and Health Working Group (FAHWG)

The group contributed food access and hunger indicators to the "Cultivating Resilience" blueprint document for Iowa food systems released in February 2011. A working group meeting was held April 8 in Iowa City.

Below: Grinnell Heritage Farm, site of August 2010 Fruit and Vegetable Working Group Session on Mechanization of Vegetable Farms



Right: Plan released  
January 2011



### Grass-Based Livestock Working Group (GBLWG)

The group's advisory committee met to review evaluation results and develop a plan of work with Pete Lammers temporarily serving as group leader with group facilitator Andy Larson. At the October 22 meeting, Rich Pirog presented on the Beef Life Cycle Analysis study examining environmental impacts of different beef production systems. The group is in discussions with the Green Lands, Blue Waters consortium about a multi-state grass-based working group.

### Presentations and media coverage for MFSI

Rich Pirog spoke about the work of the initiative and various aspects of local food systems at several events:

- Small business development workshops that discussed local food opportunities with central Iowa bankers and economic development officers
- North Central SARE-PDP, "Scaling up Local Foods," Madison, Wisconsin
- Local Harvest Dinner, Council Bluffs
- Iowa Hunger Summit, World Food Prize, Des Moines
- Northeast Iowa Food and Fitness Annual Conference, Decorah
- Wisconsin Local Food Summit
- Iowa Rural Development Council
- Iowa Fruit and Vegetable Growers Association annual meeting
- Farm to Table Summit, Harrisonburg, Virginia
- Ag Innovations Forum, Winchester, Virginia
- National Colleges and Universities Food Service Conference Midwest meeting, Ames

Pirog also was interviewed by a number of media outlets on local food issues.

- Publications: *Iowa Farm Bureau Spokesman*, *Rachel Ray Magazine*, *Des Moines Register*, *Audubon Magazine*, *E-magazine*, and *Twin Cities Daily Planet*.
- Electronic media: Iowa Public Radio (Talk of Iowa), HBO documentary, PBS, KMAK-Radio, and CNBC (web news).



Above: Garlic drying in high tunnel at Grinnell Heritage Farm

# Policy Initiative

The Policy Initiative conducts research on local, state, or regional policies that affect the sustainability of natural resources and Iowa agriculture. It also supports policy-related aspects of work being conducted by the other initiatives, and does not engage in advocacy or promotion of specific policy alternatives. Mary Adams coordinated initiative activities with guidance from Lois Wright Morton during her tenure as interim director of the Center.

## Three new alternative crop/livestock enterprise budgets

Crop and livestock enterprise budgets available from the Leopold Center and the Beginning Farmer Center at Iowa State University give farmers a quick overview of what alternative enterprises might work for their operations. The crop budget sheets are available for download at [www.leopold.iastate.edu/policy/resources](http://www.leopold.iastate.edu/policy/resources).

Enterprise budgets for Christmas trees, dairy goats and raspberries were produced this year, joining five enterprise guides issued earlier. The budgets show the level of knowledge needed, level of capital, time to pay off, and other important factors that should be considered when deciding if an enterprise is right for a particular farm operation. The budgets were prepared by ISU Extension economist Mike Duffy with assistance from Jodi Calvert, ISU economics student, and designed by Tina Davis, Leopold Center design intern. Production of the budgets was supported by the Policy Initiative.

## Collaboration with Drake University Agricultural Law Center

The Sustainable Agricultural Land Tenure Project (SALT), a two-year partnership with the Drake Agricultural Law Center and other agencies including the USDA, concluded this year. (For more details, see page 19) Products of the project, including videos and a landowner's guide to farm leasing can be found at <http://sustainablefarmlease.org>. The site will be helpful to farmers and their advisors who want to have a more environmentally sustainable operation on their leased agricultural land.

In spring 2011, Drake and the Center held two meetings of a Land Tenure Policy Working Group focused on land tenure issues and public policy implications. Attendees represented academic institutions, governmental agencies, non-profit groups and business entities. The group members shared information about their organizations and current projects and heard presentations on current findings about non-operator landowners. Another key purpose for the group was to generate additional project plans for submission to the Center's 2011 Request for Pre-Proposals issued in June. Ideas were proposed for group, joint, and individual RFP submissions.

Below (l to r): Roger Wolf, Erv Klaas, Susan Roberts, Craig Cox speak on sustainable landscapes at Iowa Environmental Conference in Des Moines



# Cross-Cutting Initiative

The Cross-Cutting Initiative, the newest of the Leopold Center's four research initiatives, was formally established in 2010. Its activities are coordinated by Malcolm Robertson, who keeps tabs on a variety of programs and grants that have applications in multiple areas. The Cross-Cutting Initiative focuses on research to improve agriculture's sustainability by providing science-based information using a systems approach.

The initiative objective is to conduct research and support education/outreach to increase the adoption of practices that satisfy the needs for crops and livestock (feed, food and bioenergy crops) while also protecting the environment and improving farming's economic viability. The initiative's main areas of interest are water, energy, soil and alternative farming systems.

*As the initiative moves forward, outcomes of immediate interest for funded projects are:*

- Assessment of agro-systems beyond yield by incorporating economics, environmental, policy and social aspects into research and extension programs;
- Increased knowledge of mechanisms regulating processes within farms/fields /communities, etc., to optimize management through a multi-disciplinary research approach; and
- Identification of trade-offs and synergies among various farming options while quantifying the effects these farming options have on soil, land, watersheds and communities (i.e., comparative farming system research).

Existing projects whose research spans several disciplines have been moved under this initiative umbrella in the past year. Read about them on page 38. Two long-running research programs with organics research (see page 20) and Practical Farmers of Iowa (see page 18) were moved to the Cross-Cutting Initiative in January 2011.

## **Cross-Cutting Working Group on Farm Energy**

The Farm Energy Working Group (FEWG), established in 2009, supports research, education, and the implementation of a variety of energy conservation, efficiency, and renewable energy practices from on-farm resources to meet the needs of Iowa's small and mid-sized farms. The FEWG is facilitated through the Center for Energy and Environmental Education at the University of Northern Iowa in collaboration with the National Center for Appropriate Technology (NCAT).

The working group includes key state organizations, energy practitioners, and farmers. It brings together participants to exchange insights, tap into each other's expertise, network, support implementation of efficiency and renewable energy on Iowa farms and learn from existing Iowa and national examples. By increasing communications among the many entities already active in the field, the working group will help participating entities to intensify their work in meeting on-farm energy needs through conservation, efficiency and renewable energy. The group's website ([www.ceee.uni.edu/Home/Programs/Energy/Energy/FarmEnergyWorkingGroup.aspx](http://www.ceee.uni.edu/Home/Programs/Energy/Energy/FarmEnergyWorkingGroup.aspx)) contains information on available state and federal incentives, grants related to on-farm energy efficiency, conservation, and renewable energy implementation.



Competitive grant projects, new and renewed, for FY2011

The Leopold Center funds a wide variety of research, education and demonstration projects aimed at increasing the sustainability of Iowa agriculture. The projects are selected after a rigorous competitive process that includes issuing an annual Request for Pre-proposals (RFP) in June, multiple reviews and assessment of full proposals submitted in November, and ending with awarding of funds in January.

## Ecology Initiative

The Ecological Systems Research Initiative funded eight pre-proposals received from the Summer 2010 RFP. Nineteen projects received renewals for a second or third year of funding and 8 projects were granted no-cost extensions or slated to end.

### Ecology Initiative existing grants – Renewals for second and third years of funding

Total amount awarded – \$541,739

Total number of projects – 19

### New Ecology grants – FY2011

Total amount awarded – \$279,496

Total number of projects – 8

### Agronomic, environmental and economic performance of alternative biomass cropping systems, 3 years

L. Schulte-Moore, ISU natural resource ecology and management; R. Moore, ISU agronomy; R. Hall, ISU natural resource ecology and management; A. Hallam, ISU economics; and M. Helmers, ISU agricultural and biosystems engineering

The project investigators are seeking biomass cropping systems that are productive, profitable and mitigate the negative effects of annual crops on soil and water quality. Investigators are developing and testing several alternative systems that include sweet sorghum/triticale for superior biomass yields; a corn-soybean-triticale/soybean and corn-switchgrass rotation to reduce environmental impacts; and combining triticale with aspen and cottonwood plantings to achieve short-term biomass yields and superior long-term yields. All systems will be compared to conventional continuous corn for 1) energy/fertilizer inputs versus biomass outputs, 2) impacts on soil and water quality and 3) establishment, production, harvest and transport costs.

**NEW** Biochar and managed perennial ecosystems: Testing for synergy in ecosystem function and biodiversity, 3 years  
S. Harpole, and L. Biederman, ISU ecology, evolution and organismal biology

Biochar is a major by-product of low-temperature pyrolysis from the thermal decomposition of wood or grasses to produce heat, electricity or biofuels. The goal is to determine the ecological impacts of biochar on the interactions among native prairie plants, soil organisms and their environment. Information will stem from field-based initiatives to determine the effects of these soil amendments prior to widespread application.

**NEW** Blurring the lines between working and conservation lands: Bird use of prairie strips in row-cropped watersheds, 2 years  
L. Schulte-Moore, ISU natural resource ecology and management

The research will quantify how grassland birds respond to the STRIPs (Science-based Trials of Rowcrops Integrated with Prairies) conservation practice, and disseminate research results to knowledge users. This study seeks to expand knowledge about a new conservation practice, the development of strategically integrated prairie strips that improve the health and functioning of the row-crop dominated landscapes found throughout much of Iowa and adjacent states.

**Crop availability of phosphorus in beef manure, 4 years**  
A. P. Mallarino, ISU agronomy

This research will investigate how much phosphorus in beef manure is plant-available to be used as a fertilizer for cropping systems in Iowa. Current recommendations are outdated, and information from other states is incomplete. Determining true levels of phosphorus in beef manure as a fertilizer can help avoid application rates that are too high or too low.

**Defining the grazing season of restored natural grasslands, 2 years**  
T. Hunt, Whiterock Conservancy, Coon Rapids

This project demonstrates for producers and land managers a two-step process: 1) testing the nutritional quality of on-farm forage in restored grasslands and 2) adjusting strategic grazing planning to optimize use of grazing as a management tool in restored native grasslands while resting permanent pastures and sustaining pasture/livestock income.

**NEW** Enhancing botanical composition, wildlife habitat and carbon sequestration of pastures in south central Iowa through soil disturbance by mob grazing of beef cattle, 3 years  
J. Russell, ISU animal science

Mob-grazing is ultra-high stock density grazing, a practice where a large concentration of animals is restricted to graze a small area, usually for a very short period of time. This project will look at how mob grazing affects forage type and structure and soil quality over multiple years. The long-term objective of the study is to evaluate the strategic use of mob-grazing on pastures in south central Iowa to improve their botanical composition for forage, as well as wildlife habitat, carbon sequestration and water infiltration.

Evaluating canola (*Brassica napus*) as an alternative oilseed crop and enhancing winter cover in Iowa, 3 years  
M. Wiedenhoeft and S. Gailans, ISU agronomy

One of the objectives of this project is to increase the amount of information available to growers about canola as a 'third' crop in Iowa. Investigators also want to gather more data about winter cover crops in Iowa. The team will assess the economical and ecological impacts of alternative cropping systems and different crop rotations. Data will be used to make recommendations to farmers.

Evaluating denitrifying bioreactors for edge-of-field nitrogen management in Iowa's tile-drained landscapes, 2 years, extended  
M. Helmers, ISU agricultural and biosystems engineering

The long-term goal of this project is to promote sustainable agriculture by facilitating the adoption of more efficient nitrogen management practices in Iowa and the upper Mississippi River Basin. Investigators will evaluate the performance of denitrifying bioreactors under Iowa field conditions, specifically using a design that allows high nitrate removal.

**NEW** Farmer perspectives on ecosystem service management, land-use targeting and the future of Corn Belt agriculture, 2 years  
J. Tyndall, ISU natural resource ecology and management

Analysis of the economic, agronomic, social and cultural aspects of farmer decision-making regarding ecosystem service management on their farms specifically, as well as for Iowa as a whole (focusing on water quality and carbon) is the goal for this project. Investigators will attempt to characterize pathways for farmer decision-making regarding ecosystem service management and facilitate the incorporation of these pathways into decision support systems in terms of various tools and policy.

**NEW** Getting the most from Iowa's forests: Linking forest understory composition to stream water quality and enhancing nutrient capture in forest remnants in agricultural landscapes, 2 years  
J. Thompson, ISU natural resource ecology and management

Research for this project will compare soil nutrient content and nutrient and sediment loads in headwater streams located within intact (natural) forests to those in degraded (disturbed) forests. The goal is to identify and disseminate information on practices that enhance riparian forest function in Iowa and the upper Midwest through actions that reduce pollutant inputs to streams and enhance natural ecological processing of nutrients in streams.

Grazing compatibility in and for future years, 5 years, extended  
C. Nelson, Southern Iowa Forage and Livestock Committee, Corning

Research and demonstrations were conducted on wildlife compatibility with grazing and grassland pasture conversion from cool- to warm-season grasses. In-field education is ongoing with high school and college agriculture students to inform them about rotational grazing management and conservation.

Grazing prairie: Improving species diversity while maintaining cattle and goat productivity and resting home pastures, 3 years  
L. Lown, Natural Resources Specialist, Polk County Conservation Board

The investigator seeks to increase species diversity at Chichaqua Bottoms Wildlife Area in Polk County by grazing cattle on a 263-acre reconstructed prairie and browsing goats in three oak savanna areas degraded by invasive species. Calf-weaning weights, body condition scores, and the economic value of winter forage harvested or stockpiled on resting home pastures also will be measured.

**Greenhorn Grazing: A modular pasture and animal management curriculum for beginning and transitioning graziers, 3 years**

**B. Leu, ISU Extension, Fairfield**

Greenhorn Grazing is an educational program for beginning and transitioning producers who want to optimize production and achieve the benefits of conservation. The project aims to lower the perceived barriers associated with entry into the grass-based livestock industry, improve the productivity and use of land, help maintain or increase perennial grassland agriculture and encourage life-long learning among graziers.

**Impacts of conventional and diversified rotation systems on crop yields, profitability, soil functions and environmental quality, 3 years**

**M. Liebman, ISU agronomy**

This project is a continuation of a previously funded grant that compared the agronomic, ecological and economic effects of conventional and low-external-input cropping systems. It focuses on measurements of nitrate leaching, greenhouse gas emissions from soil, carbon sequestration, and soil organic matter transformations, especially those related to nitrogen availability to crops. For this effort, the soybean and corn plots have been split to allow side-by-side comparisons of genetically engineered and non-genetically engineered hybrids and varieties.

**Improving soil quality by conserving insect pathogens, 2 years**

**A. Gassmann and E. Hodgson, ISU entomology**

Naturally occurring fungi that act as insect pathogens live in the soil, but they might be reduced or compromised by conventional farming practices, specifically by different kinds of fungicides. This project will compare the abundance of these below-ground fungi in conventional and organic cropping systems. The project results will be used to better understand the role such insect-pathogenic fungi can play as part of a suite of integrated pest management practices.

**Increasing carbon sequestration of working prairie by reducing invasive species in a fire and grazing system, 1 year, extended**

**R. Harr, ISU natural resource ecology and management**

This project is related to previously funded work on patch-burn grazing in southern Iowa. It will look at how the invasion of cool-season grasses affects the carbon sequestration potential of native grasslands, and evaluate and demonstrate the effectiveness of patch-burn grazing as an ecologically sound, low-input means for tall grass prairie restoration.

**Land use conversion to perennial vegetation: Quantifying soil water regime and aeration and the implications for enhancing soil resilience to climate change, 3 years**

**R. Horton, ISU agronomy, and T. Sauer, USDA National Laboratory for Agriculture and the Environment, Ames**

This project will characterize the soil water regime, look at the dynamics of the composition of soil atmosphere and examine aeration effects on root activity and decomposition of organic matter. The project expands ongoing ISU research at the Comparison of Biofuel Systems (COBS) site at the Uthe Farm (ISU agronomy farm West).

**Optimizing buffer strips for improved ecosystem services, 3 years**

**M. O'Neal, ISU entomology, and L. Schulte-Moore, ISU natural resource ecology and management**

The goal of this project is to form a research base that can guide farmers, landowners and policy makers on the enhancement of ecosystem services derived from agricultural landscapes. Investigators hope to better understand how perennial vegetation can improve conditions for crop production. They plan to compare multiple options for buffer construction and improvement of buffer performance at on-farm sites.

**Performance of cropping systems designed to reduce nitrate leaching into shallow municipal well aquifers, 3 years**

**R. DeHaan, Dordt College, Sioux Center**

This on-farm project featuring public-private collaboration will assess cropping systems with the potential to produce a reasonable return for farmers, while simultaneously reducing the risk of nitrate-N movement into shallow aquifers.

**Providing shaded pasture with perennial biomass energy plantings, 3 years, extended**

R. Hall, ISU natural resource ecology and management; J. Randall, ISU Extension forester for southern Iowa; and R. Abbott, landowner and cow-calf operation manager, Diagonal

On-farm trials continue for agroforestry techniques to improve pastures (silvo-pasture) with tree shade and additional forage while producing woody biomass. Investigators will evaluate the mid-rotation growth phase of one cycle of woody biomass harvest and alley-cropped hay production, which is then converted to shaded pasture. They also will look at the continued success of initial tilling, a weed mat cover and mowing for hay in reducing competition between planted poplars and red clover/orchard grass pasture.

**NEW** **Quantifying eastern red cedar (*Juniperus virginiana*) in southern Iowa: A starting point for conversations with landowners about threats to grassland resilience, 1 year**

R. Harr, ISU natural resource ecology and management

The objective of the study is to quantify the rate and extent of red cedar expansion in the Grand River Grasslands region of southern Iowa and northern Missouri. This research will help to integrate management actions on reserves and private lands in the Grand River Grasslands to enhance sustainability of grass-based enterprises, including livestock production and biodiversity conservation. If successful, this region will serve as a model for such integration elsewhere in Iowa and beyond.

**Quantifying the effect of perennial vegetation on soil and water quality, 3 years**

T. Isenhardt and R. Schultz, ISU natural resource ecology and management, and K. Schilling, Iowa Department of Natural Resources

The investigators are using data from a well-established research site (Bear Creek in Story County) to interpret the influence of perennial vegetation on soil biogeochemical processes. The information will be used to develop a tool to assess the potential impact of changes in land use on the quality of stream water. The researchers hope to document the influences of perennial plants on various plant communities and groundwater.

**Reconnecting Iowa riparian buffers with tile drainage, 3 years**  
D. B. Jaynes, USDA National Laboratory for Agriculture and the Environment, Ames

This project will quantify the removal of nitrate from tile drainage by redirecting a fraction of the tile drainage as interflow through riparian buffers. The researchers think that the buffers will allow for the removal of nitrates through the denitrification and sequestration processes, thereby improving water quality in the receiving stream.

**Site-specific implementation of practices that alter the spatial/temporal distribution of grazing cattle to improve water quality of pasture streams in the Rathbun Lake watershed, 2 years**

J. Russell, ISU animal science

This project will evaluate and demonstrate the effectiveness of site-specific management practices that alter the distribution of grazing cattle. The goal is to reduce the risk of point-source pollution of streams in pastures of varying size, shape and shade distribution. The researcher will identify site characteristics that optimize these practices, such as stabilized stream access points with or without buffer fencing.

**Soil moisture dynamics and plant transpiration under contrasting annual-perennial cover types, 2 years, ending**  
M. Helmers and A. Kaleita, ISU agricultural and biosystems engineering, and H. Asbjornsen, ISU natural resource ecology and management

Investigators hope to gain a better understanding of how soil moisture and plant water use vary under differing annual-perennial plant communities. This information will help land use managers understand how placement of different vegetative cover types on the landscape can influence the hydrologic balance and potentially enhance the sustainability of agricultural production systems. Sixteen different treatments (three replications) are being studied, including corn, soybeans, brome grass, switchgrass, winter cover crops in a corn/soybean system and four different native perennial species both in monoculture and polyculture plots (big bluestem, Canada wild rye, false blue indigo and stiff goldenrod).

**NEW** **Systems model and prototype development to capture and use rain water run-off from a high tunnel, 1 year**

R. Hansen and L. Naeve, ISU Extension Value Added Agriculture

The researchers will design and construct a system that enables growers using high tunnels in their production operation to reduce drainage problems, erosion and crop loss due to excess moisture in and around their high tunnel(s) associated with high volumes of runoff with each rainfall. This project aims to provide multiple water management benefits to fruit and vegetable growers with high tunnels by (1) designing a collection, retention and irrigation system for high tunnels; (2) developing a prototype on an existing high tunnel, and (3) outreach.

**Transitioning to ecologically functional production systems, 3 years**

K. Hofmockel, ISU ecology, evolution and organismal biology

The project seeks to quantify how the composition of different biomass production systems influences above- and below-ground carbon allocation, soil microbial dynamics and greenhouse gas emissions. The goal is to better understand the below-ground mechanisms that regulate carbon and nitrogen cycling in agricultural soils.

**Use of mob grazing to improve cattle production, enhance legume establishment and increase carbon sequestration in Iowa pastures, 2 years**

J. Russell, ISU animal science

The investigator aims to identify the grazing system that best optimizes the performance of grazing animals, forage mass and quality, legume establishment and the chemical and physical quality of soils in Midwestern pastures. The findings will allow the researchers to compare the effects of mob-grazing, strip-grazing, and rotational grazing on cow body weight and condition score, forage productivity and botanical composition, and the chemical and physical properties of the soils in endophyte-free tall fescue pastures seeded with red clover.

**NEW** **What drives corn yield stability in the context of climate variability? 2 years**

M. Castellano, ISU Agronomy

Can corn genotype affect the soil rooting environment (also known as the rhizosphere) to modulate yield amount and yield stability? Investigators will simultaneously examine the ability of rhizosphere properties to promote agroecosystem (crop and soil) resilience. They seek to identify causal relationships between genotype-controls on rhizosphere properties and yield amount, yield stability and soil quality.

## Marketing and Food Systems Initiative

The Marketing and Food Systems Initiative funded six pre-proposals received from the Summer 2010 RFP. Another seven projects were renewed for a second year of funding and 13 were given extensions to complete their work or were slated to end.

**Marketing Initiative existing grants – Renewals were given to seven projects for a second year of funding.**

Total amount awarded – \$200,565

Total number of projects – 7

**New Marketing Initiative grants – FY2011**

Total amount awarded – \$109,597

Total number of projects – 6

**An automated mechanical intra-row weed removal system for vegetable crops, 2 years, extended**

L. Tang, ISU agricultural and biosystems engineering

The investigators want to develop a practical mechanical intra-row weed control solution for automatically removing weeds from vegetable crops for small and mid-scale Iowa growers. Researchers designed sensing and actuation systems, constructed a second generation prototype weeder and are conducting system integration and field tests.

**Building a food system framework to advance the health of Iowans - A blueprint for action, 2 years**

M. Devlin, University of Northern Iowa, Cedar Falls, and A. Tagtow, Elkhart

Investigators will conduct an assessment of food security, public health and agriculture to create a blueprint for a healthy food system that can support healthy Iowans, farms and communities.

**Connecting family, community, and health from a food system perspective, 2 years**

K. Greder, ISU human development and family studies

Project leaders collaborated with Cass County Wellness to host a day for parents and their school-age children to learn how to grow vegetables in a garden box. Three to five families participated in three local field trips to further expose themselves to locally grown foods and visit with growers. During Year 2, they conducted 2-3 focus group interviews and used a written survey with parents who have elementary age children to gather insight into their experiences with and perceptions of locally grown food as a viable food choice in their family's daily eating.

**Cultivating the agrarian dream: Aspiring agri-entrepreneurs helping one another choose their path, 2 years, extended**

J. Lawrence and A. Larson, ISU Agriculture and Natural Resources Extension

ISU Extension Small Farm Sustainability, in concert with the Beginning Farmer Center and local coordinators (including county Extension, RC&Ds, Practical Farmers of Iowa, and farmers market managers), offered four 3-4 hour Cultivating the Agrarian Dream sessions in Marion, Amana, Marshalltown, Creston, and Independence. There were more than 100 attendees/participants. According to post-event evaluation survey respondents, as a result of these workshops: 71 percent increased their understanding of creating a vision for their farm/business, 71 percent increased their understanding of setting goals for their farm/business and 52 percent said they are "more prepared" to start farming.

**Developing and implementing a strategic plan for farm-to-school programs in northeast Iowa, 2 years, extended**

B. Ranum, ISU Extension, Winneshiek County

School districts and colleges, distributors, farmers and other local partners will work together to help increase access to and the consumption of fresh, local healthy foods for kindergarten through 12th grade and college students and faculty. Farm-to-school sites were selected, lessons featuring local food items were developed for teachers to use in future education programs, a workshop was held for the pilot school teams, meetings were held for food service directors and producers, and work was begun on school garden projects with the help of Master Gardeners.

**NEW Developing permaculture techniques for increased production and profit in sustainable year-round agriculture for beginning farmers and ranchers in southwest Iowa, 2 years**

B. Deuel and B. Barry, Golden Hills Resource Conservation and Development (RC&D), Oakland

This project, coordinated by the Southwest Iowa Food and Farming Initiative, seeks to 1) design and implement a year-round pilot project to demonstrate year-round growing techniques in high-tunnels that includes composting and vermi-composting techniques; 2) establish a formal growers association in the southwest part of the state; and 3) recruit and mentor at least four new growers in Pottawattamie County to build the local food system.

**Developing production, processing and marketing of aronia berries on small family farms in southeast Iowa, 2 years, extended**

P. O'Malley, ISU Extension, Johnson County, and J. Lawrence, ISU Agriculture and Natural Resources Extension

The second year of the project focused on working with cooperating farmers to determine best management practices along with assisting the cooperators with market development. The year also included a field day in late June at one of the grower cooperators and a post-harvest wrap up meeting in October. The four project participants initially planted approximately five acres of commercial aronia plantings in fall 2009 and spring 2010 in four southern Iowa counties (Jefferson, Davis, Washington, and Keokuk). Numerous other producers in the area established in excess of eight acres of aronia as a result of the informational meetings and association with project participants.

**Enhancing value and marketing options for pawpaw (*Asimina triloba*) by developing pulp separation and preservation techniques, 2 years, extended**

**P. O'Malley, ISU Extension, Johnson County**

With several different modifications to the pulper, researchers were able to optimize the pulper for mechanically processing pawpaws at an ISU food science lab. Pawpaw fruits from year 2 were sorted according to ripeness. The ripe fruits were processed to obtain pulp in the pilot plant using the same modified equipment and method as last year's successful run. This provided crop year effects, as well as a replication of the process.

**Evaluating the impact of regional food system work on growers, 1 year, extended**

**A. Geary, Center for Energy and Environmental Education, University of Northern Iowa, Cedar Falls**

UNI-CEEE staff identified key food producers who have been involved in their work since the mid-1990s, and helped to facilitate introducing interviewer Penny Brown Huber and the project to the producer group. She conducted in-depth producer surveys via telephone with 20-30 families involved at a high level with UNI-CEEE food programming over the years. UNI-CEEE staff developed a matrix of impacts and key indicators related to regional food systems work that will contribute to the evaluation project.

**Impacts of GAPs and post-harvest handling practices certificate training on producers' on-farm food safety behaviors and perceptions of customer assurance, 2 years**

**C. Strohhahn, ISU apparel, educational studies and hospitality management, and M. Smith, ISU Extension Value Added Agriculture**

Training will be provided for fruit and vegetable growers on good agricultural practices (GAPs) and post-harvest handling best practices recognized and accepted by medium- and high-volume retailers and food service companies. During Year 1, the investigators networked with producers both individually and through organizations; researched GAPs and other on-farm certification programs and content of these options; enrolled and participated in GAPs training; and planned for a one-day workshop.

**NEW**

**In good company, 1 year**

**M. Phillips and E. Humble, Pathfinders Resource Conservation and Development (RC&D)**

This project, coordinated by Hometown Harvest in southeast Iowa, will research business structure options for a group of producers who have a strong interest in working together to supply local food markets. Producers also will participate in a Strengths-Weaknesses-Opportunities-Threats (SWOTs) analysis of market opportunities and business structures.

**Increasing access to healthy, fresh, and local food to students in three rural public schools in northeast Iowa, 2 years**

**A. Geary, Center for Energy and Environmental Education, University of Northern Iowa, Cedar Falls**

The investigator organized a workshop on "Growing Local Lunches," aimed at local farmers interested in selling to schools or otherwise being more involved in farm to school programming. In consultation with Waverly-Shell Rock schools and Genuine Faux Farm, they revised ISU Extension's "Checklist for Retail Purchasing of Local Produce" to target schools' specific needs, and are in the process of becoming a clearing-house for these forms. They organized a "meet and greet" event in late February to bring together local growers who are interested in selling to institutions, and area businesses that are interested in buying more locally grown food.

**NEW**

**Involving new immigrants and minorities in local food systems, 1 year**

**J. Flora and C. Flora, ISU rural sociology**

Investigators hope to increase participation among immigrants and members of other minority populations in development of local food systems in Iowa. They will develop curricula for participatory research to be conducted by youth and for training sessions, and a website of resources for minority farmers, processors and distributors, retailers and consumers in each region.

**NEW** Iowa immigrant and refugee incubator farm program, 1 year

N. Wuertz, Lutheran Social Services in Iowa

This one-year planning grant is focused on initial steps for developing an incubator farm and program curriculum for Iowa refugee and minority farmers. Planning activities include visits to other programs and educators in Iowa, Iowa State University, and neighboring states, with particular attention to programs that have at least 10 years' experience.

**NEW** Local food in every pot: Growing farmers in north-eastern Iowa through public and private partnerships, 2 years

A. Geary, Center for Energy and Environmental Education, University of Northern Iowa, Cedar Falls

This project, coordinated by the Northern Iowa Food and Farm Partnership, will help facilitate more growers entering the local food market place by providing access to county-owned land, production and marketing technical assistance, and business skills development. Target groups for the program are women, minorities, and new and transitioning farmers.

**Mapping potential foodsheds in Iowa: A system optimization modeling approach, 2 years**

G. Hu, ISU industrial and manufacturing systems engineering

The investigator will gather information on the dietary needs of population centers in Iowa, determine each area's capabilities to grow food locally and create a model that shows food transportation costs throughout the state. In the second year, she will apply the methods developed to define foodshed geographies for all cities and rural populations in Iowa. The next step is to present, communicate, and initiate peer review and discussion of results with the intention of prompting derivative economic and environmental studies in Iowa.

**New champions expanded scope: Developing an action plan for building an expanded regional food economy in Black Hawk and surrounding counties, 3 years, extended**

K. Enshayan, Center for Energy and Environmental Education, University of Northern Iowa, Cedar Falls

This grant has built capacity for a stronger regional food economy in the eight-county region around Black Hawk County. The Northern Iowa Food and Farm Partnership, formed in winter 2007-8, included members who are farmers, retailers, bankers and educators.

**Regional flavors, 2 years**

S. McGill and A. Gaffey, ISU Extension, Northwest Iowa Regional Foods System Working Group

Flavors of Northwest Iowa is a project focused on developing a regional "brand" under which they map food and other locally grown assets to establish a network of local/regional food system components. From this network they are creating more delivery mechanisms, materials, maps, and information to promote local food and locally grown flavors to consumers while supporting education and growth for local food growers/businesses. They have hosted workshops, have set up social network connections and launched a website in May 2011.

**NEW** Research and development of an online local foods buying club cooperative, 2 years

C. Elwood-Gehrke and J. Grimm, Iowa Valley Resource Conservation and Development (RC&D) and J. Singerman, Prairie Ventures L.L.C.

The project seeks to develop the Iowa Valley Food Cooperative (IVFC), a web-based, direct to consumer, marketplace for food, fiber and other producers in eastern Iowa. A case study of the cooperative will be developed so that it can be replicated elsewhere and linked with other cooperatives such as the Iowa Food Cooperative based in Des Moines.

**South central Iowa local foods network, 1 year, extended**

J. Sellers, ISU Extension, Chariton, and K. Dennis and T. Wheeler, South Central Iowa Area Partnership

Educational programs will be launched to develop local markets for producers and help consumers understand the importance and benefits of local foods. The project also will examine the feasibility of creating a south central Iowa local foods network to link the efforts of 20 area food producers.

**Transplant production decision tool for vegetable producers, 2 years**

J. Ward, Iowa Organic Association, and C. Blanchard, Decorah

Two tools will be developed for financial analysis of transplant production options: a budget template for transplant production to be used in comparing production options and farm-based production to the cost of purchased transplants; and a discussion of cost-benefit analyses for various operational improvements. The latter will include a narrative discussion of risk mitigation and quality-of-life considerations. Visits were made to six farms in the first year of the project to describe and evaluate each operation.

# Policy Initiative

The Policy Research Initiative elected not to fund any proposals received from the Summer 2010 RFP. Two projects were given extensions to complete their work.

## New Policy grants – FY2011

Total number of projects – none

### Iowa farmers and credit, crop insurance and sustainable agriculture, 2 years, extended

C. Peterson, Iowa Farmers Union, Ames

Through the results of the project surveys and focus groups, more people involved in agriculture will be educated regarding the interaction between sustainable agriculture and agricultural financial and risk management initiatives.

### Renewable energy feed-in tariffs: Potential opportunities for Iowa's small farmers, 1 year, extended

N. Baer, Iowa Environmental Council, Des Moines

The Iowa Environmental Council, Iowa Farmers Union, and National Center for Appropriate Technology will conduct research on a promising policy mechanism to significantly boost renewable energy production on Iowa farms, known as a feed-in tariff. This study looks at the impacts that feed-in tariffs are having in areas where they are currently being used and will create some Iowa-specific modeling to examine the positive and/or negative impacts that such a policy might have on Iowa farmers as well as the utility companies that serve Iowa farms.

# Cross-Cutting Initiative

The Cross-Cutting Initiative funded five pre-proposals received from the Summer 2010 RFP. Another four projects were renewed for a second or third year of funding or given extensions to complete their work.

Cross-Cutting Initiative existing grants – Renewals were given to two projects for a second year of funding

Total amount awarded – \$70,000

Total number of projects – 2

## New Cross-Cutting Initiative grants – FY2011

Total amount awarded – \$206,039

Total number of projects – 5

**NEW** Building social networks to capture synergies in wood-based energy production and invasive pest mitigation, 2 years

J. Randall, T. Knoot and J. Tyndall, ISU natural resource ecology and management

This project seeks to develop comprehensive strategies for addressing the high costs associated with managing the spread of emerald ash borer in Iowa. The project will build effective partnerships and business networks to support sustainable land management activities and economic opportunities that capture value in low-quality woody material, and specifically emerald ash borer-infested wood. Investigators also will design, deliver and evaluate a collaborative tool while leading the development of the "action" component of Iowa's Emerald Ash Borer Readiness Plan.

**NEW** Drainage water quality impacts of current and future agricultural management practices, 1 year

M. Helmers and R. Kanwar, ISU agricultural and biosystems engineering; and A. Mallarino, ISU agronomy

The researchers will continue data collection from a previously funded project for one more year to account for additional variability in weather. This is a systems-level study where the overall objectives are to evaluate the drainage water quality impacts of various cropping and nutrient management systems and it includes these comparisons: cropping practices through the use of a winter cover crop, use of swine manure before corn and soybeans or just corn, continuous corn systems with and without stover removal compared to a corn-soybean system, and use of a no-till corn-soybean system.

**Exploring the role of multifunctional agriculture on the future of agriculture and rural development, 2 years**

**T. N. Papanicolaou, University of Iowa hydroscience and engineering, Iowa City**

The project researcher intends to gain an understanding of the interplay between climate shifts and management practices as applied to the sustainability of healthy soils and the development of sound agricultural policies in the United States.

**Grass-Based Livestock Working Group, 3 years, extended**

**A. Larson, ISU Extension**

The group meets quarterly to build community and facilitate information exchange among grass-based livestock producers and marketers, as well as their supporters in academia, state government and not-for-profit organizations. It provides small grants to interdisciplinary teams of researchers and outreach professionals for projects to address topics of concern in grass-based livestock production, marketing, ecology and policy.

**NEW Increasing Iowa farmers' resiliency through the Practical Farmers of Iowa (PFI) cooperators' program, 3 years**

**T. Opheim, Practical Farmers of Iowa**

This project is focused on supporting the PFI Cooperators' Program, through which Iowa farmers in conjunction with PFI staff and academic researchers investigate farmers' most pressing on-farm research and demonstration questions. Using this approach, farmers set their research and demonstration priorities, and PFI staff help them follow up on investigating those priorities through a variety of research, demonstration, and record-keeping projects. The project has a strong peer-to-peer component with farmers sharing those results with other farmers while at the same time looking at ways to improve the design, hypothesis or recruit more locations to participate.

**NEW Iowa Farm Energy Working Group, 2 years**

**C. Yates and K. Enshayan, Center for Energy and Environmental Education, University of Northern Iowa, Cedar Falls**

This project supports a statewide Farm Energy Working Group that will encourage implementation of a variety of energy conservation, efficiency and renewable energy practices for small and midsize farms in Iowa. The group meets quarterly and offers mini-grants for research, education and on-farm case studies.

**NEW The Long-Term Agroecological Research (LTAR) Experiment: Ecological benefits of organic crop rotations in terms of crop yields, soil quality, economic performance and potential global climate change mitigation, 3 years**  
**K. Delate, ISU agronomy and horticulture; C. Cambardella, USDA National Laboratory for Agriculture and the Environment; and C. Chase, ISU Extension**

The Long-Term Agroecological Research (LTAR) Experiment was established in 1998 at the ISU Neely-Kinyon Farm in Greenfield to compare conventional and organic cropping systems. The proposed research evaluates alternatives to the traditional corn-soybean rotation in Iowa, and investigates production processes based on agroecological principles, designed to reduce off-farm energy demand and to increase the internal resilience of agroecosystems, which consequently increases their adaptability to potential climate changes.

**Meeting on-farm energy needs through conservation, efficiency and renewable energy, 2 years, extended**

**K. Enshayan, Center for Energy and Environmental Education, University of Northern Iowa, Cedar Falls**

A Farm Energy Working Group was formed to support the implementation of a variety of energy conservation, efficiency and renewable energy practices to meet on-farm energy needs of Iowa's small and midsize farms. Group members include representatives from organizations such as Practical Farmers of Iowa, Iowa Farm Bureau Federation and the Iowa Energy Center, as well as farmers with an interest or expertise in using renewable resources for on-farm energy uses.

**Toward a new Homestead Act: Designing a farmstead transfer and leasing program for high-value farming and farmstead preservation, 1 year, extended**

**H. Lewis, National Center for Appropriate Technology**

What motivates landowners, beginning farmers and immigrant farmers to participate in preserving and transitioning Iowa farmsteads? The investigator will use the findings to make recommendations for policy and programs that could help increase farmland transfer to new operators such as beginning and immigrant farmers.



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