



LEOPOLD CENTER  
FOR SUSTAINABLE AGRICULTURE

A NEWSLETTER OF THE LEOPOLD CENTER FOR SUSTAINABLE AGRICULTURE

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## New systems protect against sediment loss

By LAURA MILLER *Newsletter editor*

**P**reliminary data from a Leopold Center-funded project shows that perennial prairie strips planted at critical points in fields of corn and soybean have minimized soil erosion, even during periods of heavy rainfall.

“We measured significant reductions in sediment loss with systems that have 10 and 20 percent perennial vegetation on the landscape, compared to systems that do not,” said Iowa State University ag and biosystems engineer Matt Helmers. “These perennials are 15 months old and while they are fairly immature as a native prairie, we are seeing that the standing vegetation, whether prairie plants or annual weeds, is helping to slow the flow of water from crop fields and as a result we are seeing deposition of sediment.”

The project involves 14 small watersheds within the Neal Smith National Wildlife Refuge in Jasper County that are

managed as restored prairie and for row-crop production. Native grasses have been planted in plots representing 10 or 20 percent of the total drainage area in each watershed, and placed at the bottom or midway up the slope.

During a three-month period from April to June 30, the average sediment loss from watersheds with no prairie strips was 8.5 tons per acre, compared to an average one-half ton/acre sediment loss on the watersheds with prairie plantings. The period included 10 runoff events that produced measureable sediment loss.

“Our biggest rain event in June was 4-5 inches one morning,” Helmers said. “This resulted in significant runoff through our flow measurement flumes. In areas without prairie plantings, sediment was deposited 4-6 inches deep in our flumes.”

**NEW SYSTEMS** *(continued on page 7)*

## Survey shows how high prices, environment, other concerns sway consumer views

**T**he newest nationwide survey conducted for the Leopold Center shows how rising fuel and food costs, coupled with increased concern about environmental impacts and safety of the food supply, are changing American consumer perceptions.

The survey showed that consumers are reassessing their shopping and eating habits to cut fuel use, would consider carbon footprint food labels as long as their costs do not increase, worried more about natural habitat loss than greenhouse gas emissions, and were much more likely to view local food as having traveled 100 miles or less from the farm to point of sale than coming from their state or region.

“As the demand for local food products increases, it is critical that retailers, distributors and farmers develop clear and authentic messages about these products to maintain consumer confidence and trust,” said Leopold Center associate director Rich Pirog, who coordinated the project. It included a representative, nationwide sample of more than 750 consumers who responded to a web-based survey conducted by a third-party company in August 2008.

Results are summarized in a new Leopold Center report, “Food, Fuel and the Future: Consumer perceptions of local

**CONSUMERS** *(continued on page 2)*

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LEOPOLD CENTER

#### LEOPOLD LETTER MISSION

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

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



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## CONSUMERS PERCEIVE 'LOCAL' FOOD AS BEING SOLD WITHIN 100 MILES FROM WHERE IT WAS GROWN

**CONSUMERS** (continued from page 1)

food, food safety and climate change in the context of rising prices,” written by Pirog and Iowa State University graduate student Becky Rasmussen. Pirog directed a similar consumer survey in 2007.

Survey respondents were more likely to react to rising food and fuel prices by taking fewer vacations, buying more food items on sale, eating out less, and purchasing fewer desserts (compared to other food categories). A minority of respondents (17 percent) were very likely to cope with rising prices by increasing their purchases at farmers markets or by canning or freezing more fruits and vegetables.

Pirog said that while 55 percent of the respondents perceived the U.S. food system to be safe, that number had dropped from 70 percent in the Center’s 2007 survey. There were clear concerns with a global food supply system – only 15 percent of respondents viewed such a system as safe, compared to 74 percent for a local system and 73 percent for a regional system.

“The respondents believed that a food safety seal or inspection certification, along with more information about who has handled and produced the food, along with country of origin, would increase their confidence in the food supply,” he added.

Respondents also were asked a series of questions about their perceptions of greenhouse gases in food supply chains, including labels that showed a food’s carbon footprint (amount of greenhouse gas

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Food, Fuel and the Future:  
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emissions), and how greenhouse gas emissions and climate change compared with other environmental problems.

More than 50 percent saw value in retailers putting carbon labels on their food products, with the vast majority willing to encourage the labels only if their costs did not increase. Fifty percent of respondents perceived the loss of natural habitat as a more important environmental issue than climate change, with more than 40 percent viewing water pollution as more important.

How far can food travel and still be considered “local”? The survey offered respondents several options from which to select their definition of locally grown. More than two-thirds said that local food traveled 100 miles or less from the farm to point of purchase, while only a third viewed the definition as “grown in their state or region.” Respondents from larger western states were less likely to choose the option “25 miles or less” and more likely to choose “grown within their state” as their definition of local than their counterparts across the rest of the country.

## Book shares voices from local food movement

The growers, chefs, farmers and others at the forefront of the local foods movement have written essays for a new book, *Eating in Place: Telling the Story of Local Foods* (2008 Free River Press). Robert Wolf of Decorah conducted writing workshops in Iowa and Wisconsin where some of the essays originated; part of the publication costs were supported by special grants from the Leopold Center and the Bradshaw-Knight Foundation. Former Leopold Center director Dennis Keeney caps the collection with a summary of Midwest agriculture. Other contributors include Winneshiek County farmer Wayne Wangsness and Grinnell College professor Jon Andelson.

Wolf asked contributors to answer the question, “What brought you to your work?” Robert Karp, former executive di-

rector of Practical Farmers of Iowa, became passionate about helping develop Community Supported Agriculture out of a deep concern for the preservation of a healthy U.S. agriculture. Restaurateur Barry Bursack established the first organic farmers’ market in Chicago so that his clientele could dine on tasty food. For farmer Virginia Gotke, who sells her lamb to local customers, farming sustainably is a way of helping to heal the land.

“The local foods movement brings together many strands of thought about food, the land, health and community,” says Wolf. “I do not believe it is a fad because it expresses a deep-seated need to reconnect, not only with the land, but with our bodies and with one another.”

The book can be ordered from Free River Press, (563) 382-6077.

# q&a

## A conversation with Director Jerry DeWitt

### Q. Why does the Leopold Center have a Policy Initiative? How does policy fit with sustainable agriculture?



The Leopold Center has funded research throughout its history that has made significant and visible impacts on farming practices in Iowa. We invested in areas such as nitrogen management, and work by the late Fred Blackmer that led to the late-spring soil test, now an important tool for farmers. We invested research dollars in other areas, too – hoop structures for swine, grazing, buffers and streamside plantings, and increased markets for locally grown foods – that we believe have had visible impacts on the Iowa landscape.

We also acknowledge that developing new practices and programs can be effective only up to a point. Acceptance of changes in practices often is driven by policies at the state and federal levels. The approach at the Leopold Center is to provide the research for innovative practices and systems, and integrate targeted policy work that can encourage change.

### Q. How is the Leopold Center's policy work different than other groups that examine agricultural policy?

The Policy Initiative is one of three focus areas for research and programs at the Leopold Center; we also have the Ecological Systems Initiative and the Marketing and Food Systems Initiative. Our policy arm is the smallest of the three initiatives, with a majority of our efforts and resources focused on ecological (the production aspect of agriculture) programs and practices.

The Leopold Center staff and advisory

board agree that our policy work must focus on Iowa issues and opportunities. Our limited resources do not allow us to directly tackle significant issues such as the Farm Bill when other groups are providing leadership and expertise at the national level. We have positioned our work to be supportive of other activities in the state or region. We provide data and analysis and share our findings, but do not advocate for specific positions.

### Q. What are some of the key policy issues that the Leopold Center has addressed?

We try to focus on issues that relate to our rural Iowa landscape and are impacting our farm families and communities. Some real-time issues for Iowans that may be included in our policy work are protection of soil and water resources, flooding impacts, the Iowa implications of hypoxia in the Gulf of Mexico, loss of local infrastructure such as in local meat processing, the effects of federal programs such as CSP, specialty crops for Iowa, access to markets, and creating opportunities for new farmers.

To undertake meaningful policy projects we are working with other groups throughout Iowa who share common interests. Partners beyond Iowa State University in past policy ventures have included the Iowa Farmers Union; Practical Farmers of Iowa; Iowa Farm Bureau Federation; Drake University Ag Law Center; Women, Food and Agriculture Network; the Iowa Natural Heritage Foundation; and the Iowa Network for Community Agriculture. These joint efforts usually have included funding to these groups through grants to work on

issues that may be related to our work in Ecology or Marketing and Food Systems, or to answer particular questions that relate to a larger or overarching issue.

### Q. What strategic investments are needed in policy? What do you see as a major goal of local policy?

We likely would be well served in Iowa if we could begin to rethink the role and contribution of local and regional agriculture to the well-being of our communities and state. How can agriculture be repositioned and viewed as a local economic development engine as are other industries? How can we measure the impacts of local and regional agriculture to our state economy? How are communities better served by reaching out to farmers, local processors and ag businesses in their revitalization efforts?

To do this, we need more targeted local and regional economic research in Iowa. We need economists and local decision makers working together. We must gather real data that illustrates agricultural impacts locally. We must show opportunities backed by facts that provide local policy makers and elected officials with choices and options that include a robust agricultural sector.

Audiences that we must better serve are our elected representatives in the Iowa General Assembly, Boards of Supervisors, City Council members, Soil and Water Commissioners, various county boards, and county agricultural associations.



*Leopold Center research showed the best time to test soil nitrate was when corn was six inches tall, in late spring. Farmers were encouraged to use these kits before they applied nitrogen. [Leopold Center historical files]*



## Fast access to Leopold Center research

We've added a new page to the Leopold Center web site to help users quickly find results of Leopold Center research.

Summaries of more than 200 completed research project supported by the Leopold Center's competitive grants program are now organized by topic. Topics range from animal management and forages to energy and weed control. The summaries are condensed from longer, more detailed final reports submitted by the principal investigators.

The Leopold Center web site also uses the popular Google search engine. Find the new research page, [www.leopold.iastate.edu/research/topics.html](http://www.leopold.iastate.edu/research/topics.html).

## Summer RFP

The Leopold Center's Summer 2008 Request for Pre-proposals (RFP) resulted in 62 submissions related to projects with first-year funding of more than \$1.4 million. The submissions included 25 pre-proposals in the Ecology Initiative, 28 in the Marketing and Food Systems Initiative, seven in the Policy Initiative and two that crossed several initiatives. The requests have been reviewed by Leopold Center Advisory Board and staff as part of multi-step process that also includes out-of-state reviewers who will examine the full proposals. New projects will be announced in early 2009.

## Cover crops

Just in time for the cover crop planting season, the Midwest Cover Crops Council has launched a new web site to encourage widespread adoption of cover crops. The site, [www.mccc.msu.edu](http://www.mccc.msu.edu), includes crop-by-crop information, links to relevant publications, and a survey designed to gather information about cover crops from farmers, researchers, agency personnel and others. The Leopold Center is a member of the Council, which plans to develop a web-based Cover Crops Selector tool.

## Two regions receive funds for local food efforts

With demand growing for local foods, two groups in Iowa hope to help farmers and businesses meet that demand, as well as create economic opportunities to their communities.

The Regional Food Systems Working Group (RFSWG) coordinated by the Leopold Center is providing grants to help get local food efforts off the ground in Marshall County in central Iowa and Black Hawk and surrounding counties in northern Iowa. RFSWG-supported efforts are now up and running in 40 of Iowa's 99 counties.

"These grants will accelerate the development of local food efforts underway in these counties and connect them to the RFSWG learning community," said Rich Pirog, who also leads the Center's Marketing and Food Systems Initiative.

Pirog said other groups have used the funds to offer mini-grants to farmers, assess market capacity, gather information for directories showing where to buy local foods, and other activities. The important thing is that each group determines what will help its region meet the challenges of growing, processing and distributing local foods.

The Marshall County effort is a coalition including Marshalltown Community College, ISU Extension, the Iowa Network for Community Agriculture, Prairie Rivers RC&D, and the North Central Regional Center for Rural Development at ISU. The group plans to work closely with the county's Latino population as well as the growing Sudanese and Burmese populations.

In northern Iowa, the new Northern Iowa Food and Farm Coalition is an expansion

of the University of Northern Iowa's Local Food Project that facilitated institutional purchases of local products for the past 10 years with Leopold Center support. The group is studying the feasibility of a food processing center and meat buying club.

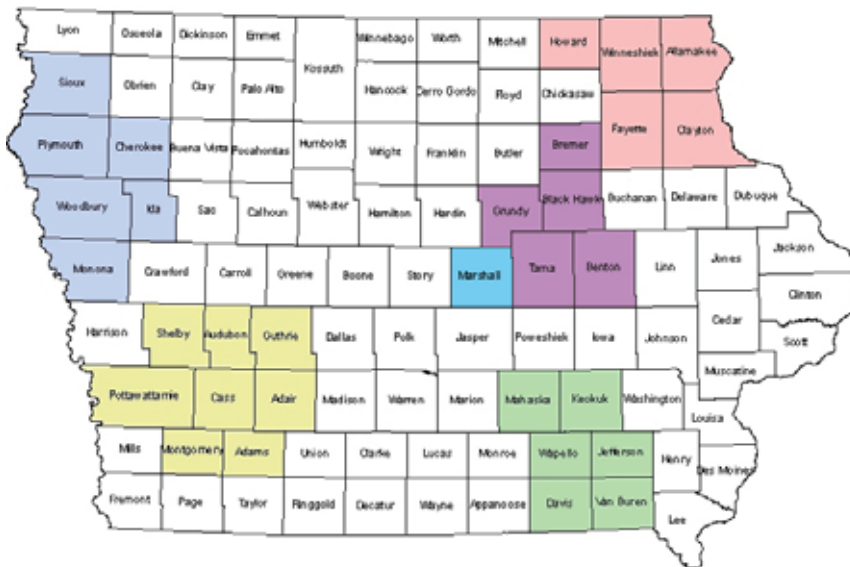
Other RFSWG-supported groups are Hometown Harvest of Southeast Iowa, led by the Pathfinders RC&D, Fairfield; Northeast Iowa Food and Farm Coalition, led by Iowa State University Extension, Decorah; Southwest Iowa Food and Farm Initiative, led by the Wallace Foundation for Rural Research and Development, Lewis; and the Northwest Iowa Regional Local Foods System, led by the Floyd Boulevard Local Foods Market program, Sioux City.

Pirog said some of the groups have hired part-time coordinators who create excitement and synergy in communities. In Pottawattamie County, local food champions have helped county officials develop a policy that will provide \$30,000 a year over the next five years for a local foods council to help increase local food sales in the Omaha-Council Bluffs trade area.

RFSWG has surpassed its goal of increasing local food sales. Sales of local foods tracked in several communities increased by \$330,000 in one year. One food cooperative in northeast Iowa tripled in size and increased the number of local food vendors from 18 to 78.

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Regional Food Systems Working Group,  
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## RFSWG-Supported Local Food Efforts in Iowa





# Future

## TOWARD A SUSTAINABLE Redefining sustainability: 'Greening' to self-renewal

*Despite efforts to reduce unsustainability, global resource consumption continues to grow. There is an urgent need for a better understanding of the dynamic, adaptive behavior of complex systems and their resilience in the face of disruptions, recognizing that steady-state sustainability models are simplistic. — Joseph Fiksel, Co-director, Center for Resilience, Ohio State University*

“Going green” seems to be the new sustainability catchphrase designed to save the planet. The question is: If we all go green, will that get us to sustainability? A typical dictionary definition of sustainability is “to maintain,” “to keep going,” “to keep in existence.” As a broad overview that is a useful definition, but it calls into question exactly what it is that we want to maintain.

In today’s discourse we generally view sustainability from a quantitative perspective. How can we maintain or improve crop yields? How can we maintain the growth of the economy? How can we improve the energy efficiency of our vehicles so we can continue transporting goods from one part of the world to another in the face of rising energy costs? How can we increase the cod population to maintain our seafood industry?

Both environmental and commercial sectors have been captivated by this approach to sustainability.

More recently we have added the “greening” component to this quantitative perspective. Recognizing that we are reaching certain thresholds that could fundamentally change the functioning of the planet, we are beginning to focus on improving efficiencies, reducing our greenhouse gas emissions, switching from fossil energy to renewable alternatives and recycling more of our wastes. These seem like laudable activities, but will they lead us to sustainability?

Inspired by the insights of ecologists such as C.S. Holling, a new professional society called the Resilience Alliance has emerged during the last 15 years. Following Holling’s description of natural systems, the Resilience Alliance has concluded that this quantitative approach to sustainability is based on false assumptions.

“In a world characterized by dynamic change in ecological and social systems, it is at least as important to manage systems to enhance their resilience as it is to manage the supply of specific products,” the Alliance claims. Using the quantitative approach, “we have assumed that we could manage individual components of an ecological system independently, find an optimal balance between supply and demand for each component, and that other attributes of the system would stay largely constant through time.” However, this is a flawed assumption, the Alliance says, given how both social and ecological systems function. All social and biophysical systems are constantly changing.

The basic message from the resilience thinkers is that doing more of the same – new technologies, greater efficiency, more control and command, more intensification, more single tactic strategies – without addressing the resilience of systems will not lead to sustainability. A central problem is that the kind of efficiency that leads to optimization tends to eliminate redundancies, the key ingredient of resilience. Additionally, the achievement of such efficiencies tends to cause rebound effects. More fuel-efficient cars

inevitably lead to more driving.

So the kind of greening that pushes the pedal to the metal a little harder – more efficient technologies, better command and control, input substitution – ends up worsening the problem we intended to solve. We delude ourselves into believing that working smarter will solve the problem, but more often it simply reinforces the problem since we have not approached it from a dynamic social/ecological perspective.

The central issue here is that we can never control whole systems, nor can we totally control any part of a system in isolation. Consequently, while greening may bring about desirable short-term results, it will never lead to sustainability. Our world is a complex adaptive system that is interconnected, interdependent and constantly changing. Accordingly, all systems are unpredictable and proceed in a nonlinear fashion. In the end we never can hold a system in an optimal, sustainable state. We only can design systems to enhance their capacity for self-renewal.

This is where some of the prescient wisdom of Aldo Leopold is instructive. Leopold reminded us of two important realities with respect to resilience that we have largely ignored, but that seem essential if we truly are interested in sustainability.

First, he wrote that it is futile to calculate the value of conservation “wholly on economic motives” because “most members of the land community have no economic value,” yet they are vital to the stability and integrity of the whole. We also now know that each biotic community is so complex and dynamic that it is impossible to determine which species are essential to its sustainability. Consequently, using a cost/benefit analysis as a basis for judging the value of sustainable practices is a fool’s errand.

Second, Leopold recognized that we could not “preserve” the biotic community in any given state of equilibrium. Since biotic communities are dynamic and interdependent, they are constantly in a state of change. Therefore, conservation perceived as an activity to preserve things in their “natural” state also is an exercise in futility.

What we can do, however, is to understand and preserve the biotic community’s capacity for self-renewal and that, according to Leopold, requires the nurturing of an “ecological conscience.”

Leopold writes: “A land ethic, then, reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the land. Health is the capacity of the land for self-renewal. Conservation is our effort to understand and preserve this capacity.”

Nurturing Leopold’s concept of conservation is essential to any quest for sustainability.

For a longer version, see *The Networker*, July/August, 2008, published by the Science and Environmental Health Network, <http://www.sehn.org>

# Leopold Center becomes focus for research project, for a change

By CAROL BROWN Communications specialist

The Leopold Center is known for providing grants for research projects, but rarely is the focus of research. John F. Obrycki, Jr. turned the tables, and made the Leopold Center the subject of his senior honors research project at Miami (Oxford, Ohio) University.

With a double major in history and environmental studies, Obrycki felt that the Leopold Center was a good fit for his project. An Ames native, Obrycki also was familiar with the Leopold Center, especially since his father, John J. Obrycki, Sr. (now an entomologist at the University of Kentucky) had received research funds from the Leopold Center while at Iowa State.

Obrycki's project is entitled "Broadening the Communities to Which We Belong: Iowa, Agriculture, and the Leopold Center for Sustainable Agriculture," and focuses on the history of the Center, its successes and challenges.

Obrycki had concerns about the depth and breadth of his chosen subject. The project was extensive, especially for an undergraduate student. He also was concerned about his age relative to the subject matter.

"In 1987, I was one year old when the Iowa Groundwater Protection Act was signed and created the Leopold Center," he said. "I didn't have a foundation of knowledge and the experiences to pull from that the people I interviewed had. But the project was a great learning opportunity."

His hypothesis: "The Leopold Center is a model\* for an institutional approach to agricultural issues." He explained that "the asterisk represents the limitations or obstacles that the Center faces that further show how the Center can be a great example by learning how it approaches these issues."

The report covers topics including Iowa agriculture in the 1980s, the Groundwater Protection Act, and the Leopold Center and its approach to sustainable agriculture. Obrycki conducted quantitative and qualitative assessments of the Center's impact

through its research grants, and through more than 50 interviews with Leopold Center advisory board members, staff and stakeholders.

Obrycki noted a theme of time as he was conducting his project.

**Time:** The Leopold Center celebrated its 20th anniversary in 2007 but, as one interviewee stated, "twenty years is a short time, really (to fully assess the Center's impact)." The Center has several great successes over a short time.

**Timing:** The Groundwater Protection Act and subsequently the Leopold Center were created because the right people convened at the right time 20 years ago. This collaboration still exists through the Center's efforts to be a catalyst and convener for sustainable agriculture.

**Timelessness:** The Center addresses large questions regarding sustainable agriculture, a timeless concept. The Center is a place where "a continual process" of finding answers can occur.

He concluded by indicating the challenges that the Center faces: its relationship with mainstream agriculture; the size of the Center; its level of funding; communication with agricultural groups, farmers and the public; and the Center's involvement with policy. He cited major successes of the Center: its ability to be a voice for change, its efficient use of limited resources, and its visibility to raise awareness of sustainable agriculture.

The project has been a two-year "journey" for Obrycki, completed early in the Spring 2008 semester prior to his graduation. He has presented the project at Miami University, the Forum on Agricultural and Rural History at Mississippi State University, and to the Leopold Center staff and advisory board. He hopes to continue this research more in-depth when he moves on to graduate school next year.

*Obrycki cited this quote about Leopold Center-funded research, taken from a newsletter interview with ISU animal science professor Mark Honeyman: "None of this would have been possible with not only the funding support, but also the ethical and philosophical leadership of the Leopold Center."*



John F. Obrycki, Jr.

## Leopold Center grants spark more research

One aspect of John F. Obrycki, Jr.'s project was to explore the outcomes of the research that the Leopold Center has funded. Using on-line tools such as Web of Science, Obrycki found 107 publications were generated from 233 Leopold Center grant projects, which were cited a total of 2,105 times.

One journal article in particular, "Premaginal development, survival, and field abundance of insect predators on transgenic *Bacillus thuringiensis* corn" from *Environmental Entomology*, has been cited 133 times in the scholarly world. This article was the outcome of a 1995 Leopold Center grant conducted by Marlin Rice, John J. Obrycki, Sr., Leslie C. Lewis, and Clinton Pilcher.

According to the Web of Science, citations are "footnotes or references published with a scholarly journal article. These cited references are authors' acknowledgments of their debt to the published research findings of others."

So, what do all these citations mean to non-researchers? It means that scholarly peers are reading the results of Leopold Center-funded projects and continuing their own research based on published findings. It means a network of information is developing with its roots at the Leopold Center. It means the impact that the Leopold Center has on advancing agriculture is great.

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*Broadening the Communities to Which We Belong: Iowa, Agriculture, and the Leopold Center:*  
[www.leopold.iastate.edu/pubs/other/other.htm](http://www.leopold.iastate.edu/pubs/other/other.htm)



## SUMMER RAINS PUT SYSTEM TO THE TEST

### NEW SYSTEMS *(continued from page 1)*

In contrast, we saw much less sediment deposited in the flume from the watersheds with prairie plants and observed sediment deposits at the upstream edge of the prairie plantings.”

Helmerts said many conditions of the past summer may not be typical of other years. “I am convinced these systems can work because they provide resistance to flow and better infiltration, as well as add diversity to the landscape,” he added.



*This flume collects field runoff from research plots at the Neal Smith National Wildlife Refuge.*



*Prairie strips are placed in strategic locations within each watershed.*

## Long-term study mixes perennials, annuals

By LAURA MILLER *Newsletter editor*

Prairies in the Neal Smith National Wildlife Refuge quickly give way to what might be expected in July in central Iowa: an emerald ocean of corn as far as one can see. However, like grass missed by a lawnmower, a few patches catch the eye.

These areas are not an oversight or poorly drained areas that need to be replanted. They are strategically placed prairie strips that are part of a multi-year Iowa State University research project supported by the Leopold Center Ecology Initiative.

Leading the team are ecosystem ecologist Heidi Asbjornsen, Natural Resource Ecology and Management, and water quality engineer Matt Helmerts, Agricultural and Biosystems Engineering.

The goal is to mix perennials into a landscape dominated by annual crops to take advantage of the ecological services provided by perennials. Perennials can sequester carbon, provide wildlife habitat, protect soil and water and in the future be a source of biomass for renewable fuels.

“To make these systems work, however, policies may be needed to provide appropriate compensation to landowners for providing ecosystem services that are in line with society’s growing desire for those services,” Asbjornsen explained. “We hope this research will help us understand what combination of annual-perennial mixtures and agricultural policies will maximize social, economic and environmental benefits from agricultural landscapes.”

The study involves 14 watersheds, ranging in size from 2 to 8 acres. All are within the refuge and managed as restored prairie or for row-crop production by the U.S. Fish and Wildlife Service. Native grasses have been planted in plots representing 10

or 20 percent of the total drainage area in each watershed, and placed at the bottom or midway up the slope. Baseline measures were taken in 2006, the prairie plantings were done in 2007, and 2008 marks the first full crop season for the project. Researchers are collecting data

on water quality, including runoff volume during rainfall events, quality and depth of groundwater, and the amount of sediment, nitrogen and phosphorous leaving each watershed. They also are measuring changes in biodiversity: bird and insect populations, plant species and composition in the prairie strips and reconstructed prairie, and insect dynamics across different watersheds.

Plant transpiration, soil respiration and total belowground carbon will be determined once the prairie plants have become

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Watch a video about this project:  
[www.leopold.iastate.edu/research/eco\\_files/ground.html](http://www.leopold.iastate.edu/research/eco_files/ground.html)

well-established, in 2010 four years after planting. Asbjornsen said these measures will help determine how perennials affect soil carbon storage, nutrient uptake and water movement in the watersheds.

Before field experiments began, researchers met with farmers and local stakeholders, including government agencies, producer groups and environmental organizations. This stakeholder advisory group has helped researchers in design and management of the experiment so that findings will be most meaningful and applicable to those who could use the results.

“We realized from the start that unless our research addresses concerns and priorities of people who make decisions on the ground, it will be difficult to promote agricultural systems that include perennial plants,” Asbjornsen said. “This stakeholder group has provided valuable suggestions and a local farmer has been active in helping us manage the sites.”

The Leopold Center provided an initial planning grant and current five-year operating grant. Other major funders include the ISU College of Agriculture and Life Sciences, National Science Foundation and the U.S. Forest Service. The project is guided by a Stakeholder Advisory Committee comprised of representatives from 15 institutions and organizations.

# Adams County project specializes in possibilities

By LAURA MILLER Newsletter editor

In a world of increasing feed costs and volatile markets, graziers can find comfort in new ideas that someone else already has tested.

That's how Nodaway farmer Leland Shipley sees the Adams County Conservation Reserve Program (CRP) Demonstration Farm north of Corning. He recently added 60 acres to his operation, using cost-share funds to build a small pond and set water tanks and lines to serve three paddocks. He's also interested in the wildlife habitat and is contemplating the addition of warm-season grasses to diversify his pasture forages.

"They try a lot of new things at the farm and I've been following them for a long time," said Shipley, who has a cow-calf operation and grazes sheep. "If nothing else, if you get just one idea that can help you maintain profitability, it's a good thing."

Helping cattlemen profitably maintain large tracts of hilly and environmentally sensitive land in pasture is the purpose of the demonstration farm set up in 1990. The Southern Iowa Forage and Livestock Committee, which operates the 480-acre farm, secured special USDA permission to graze the land that was under CRP contract. They now demonstrate rotational grazing with three cow-calf herds, each managed using a different approach and a variety of techniques and equipment.

The Leopold Center has provided support for the farm research, demonstration and education, most recently through a five-year competitive grant from the Leopold Center Ecology Initiative that began in 2006. With millions of acres in CRP contracts expiring from 2007 through 2009, the Leopold Center grant supported:

- stepped-up outreach, including summer interns, field days, workshops, field trips for area high school and college students;
- research on the compatibility of grazing with wildlife nesting (possible and profitable);
- ways to add warm season grasses to the forage mix for a longer grazing season; and
- an economic comparison of grass and row-crop scenarios on marginal lands.

Testing a variety of grazing management techniques – and possible options for area farmers – has been most important to Brian Petersen, state grassland conservationist with the Natural Resources Conservation

Service (NRCS) who is working with the Adams County project. Two different ways to introduce warm season grasses is one of the recent experiments.

"I get excited talking about these paddocks because I can see some real opportunities for farmers," he said. "We're showing that these systems can work but it takes a different mindset."

He walks through an area with nearly a dozen different forages. It has cool season grasses – tall fescue, orchard and brome grass, commonly grazed in the region. They've introduced nitrogen-fixing legumes – alfalfa, Kura clover, red clover and birdsfoot trefoil. Also in the mix are warm season grasses, best grazed mid- to late summer and again as stockpiled forage in the fall. These species include the native varieties of big and little bluestem, switchgrass and Indiangrass.

In one paddock they used the conventional method to establish a warm season grass pasture. Herbicides killed existing cool season grasses, followed by no-till drill of warm season varieties. Another herbicide application suppressed cool season grasses while warm season varieties were established; the paddock was not grazed.

Comparatively, in another paddock they interseeded warm season grasses into the existing pasture. From mid-April to mid-May while cool season grasses grew, they allowed cattle to overgraze, which kept competition at bay while warm season grasses became established. By July 1, the cool season grasses were ready to graze again, and by the third year of the demonstration there was an adequate stand of warm season grasses in the forage mixture for grazing. If managed on a rotation, the paddock also would have stockpiled grass available by late fall, and possibly grazed up to 10 months of the year.

In a third area of warm season grass established in 1998, they interseeded legumes to supply nitrogen and enhance the quality of the forage.

"The biggest argu-

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Related publication,  
Benefits of Grazing CRP  
for Recreational Landowners:  
[www.leopold.iastate.edu/  
research/eco\\_files/CRPgazing.pdf](http://www.leopold.iastate.edu/research/eco_files/CRPgazing.pdf)

ments against warm season grasses are that you lose a year while getting them established and that you only have a two-month grazing season," Petersen explained. "We are showing that it's possible in a managed system to continue to graze throughout the year if you have cool season grasses in the mix."

He said the hidden value lies in the 45-day rest period, from mid-May to July 1, coinciding with bird nesting season. "This gives birds the opportunity to nest and get chicks hatched and growing without livestock interference. The early grazing opens up the canopy so smaller birds can move in, and legumes provide upright structures that some species need, and attract bugs for birds to eat," he said.

NRCS soil conservationist John Klein said the Adams County project has evolved over time as the farm situation changes.

"We don't promote one way as being the best because every situation is different, so we try a variety of management techniques and projects," Klein said. "This project is particularly important to the people in southern Iowa with soils that are less than wonderful, now faced with a decision between short-term gain and converting CRP acres to cropland, or continuing to keep grassland, which obviously saves the soil and productivity of the land."



NRCS State Grassland Conservationist Brian Petersen notes a diverse mix of warm- and cool-season grasses and legumes.



# Leopold Center could spearhead local energy districts

By ANDY AND PAUL JOHNSON *Guest columnists*

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

Read the Johnsons' full essay and more about the Leopold Center's core issues: [www.leopold.iastate.edu/about/core.html](http://www.leopold.iastate.edu/about/core.html)

*EDITOR'S NOTE: Local Policy is one of six core issues that help guide the work of the Leopold Center and clarify our role and response in critical areas. We asked Andy Johnson and his father, Paul who helped write the Iowa Groundwater Protection Act that created the Leopold Center in 1987, to explain their idea for local policy regarding a timely issue. Below are excerpts from a longer piece, which can be viewed on the Leopold Center web site. These innovative ideas are presented to generate discussion; they do not represent the position of the Leopold Center or Iowa State University.*

Today, no issue has more potential to harm Iowa's farms and farmers, our landscapes and biodiversity, our communities and economies, than does energy costs and climate change. On the bright side, nowhere is there greater potential to plug the leaks, revitalize household/farm budgets and community economies, and generate new income streams and jobs, as there is in energy efficiency and small-scale, distributed renewable energy. How do we get there from here – quickly, dramatically?

The answer, we believe, is local – local policy, local organization, local implementation. International agreements, state standards, and utility programs can bring slow and steady progress, but not dramatic change. They can't create a movement, instill a sense of responsibility, or create an energy ethic on main street America.

The soil conservation movement in the 1930s and 40s, however, provides a model. Poor farming practices nationwide – magnified by the Dust Bowl – threatened to turn large portions of America the Beautiful into wasteland. Most people don't realize that could have happened, if not for the advent of the soil conservation movement.

Out of the crisis of the Dust Bowl was born the Soil Erosion Service, promptly renamed the Soil Conservation Service, now the Natural Resources Conservation Service. Demonstration projects were begun around the country and field days drew hundreds and even thousands of farmers, but the federal conservationists quickly realized they would accomplish relatively

little without local leadership and organization. Soil Conservation Districts became the local preachers of conservation, and created a climate of urgency and a community-wide expectation of action.

Movements mature, and we still have much potential for improvement in soil management. But those who know the history know that the soil conservation movement dramatically changed – some would say saved – America's working lands.

It is time for Iowa to lead the nation in the establishment of Energy Districts in every county in the state. Districts would have a local board and a staff of technical energy conservationists capable of holistic energy analysis, planning, and implementation assistance for farms, households, businesses, and communities. Their mission would be both economic and ecological, and all would work from a common base of technical tools provided by a state-level partner.

This is where the Leopold Center and Iowa State University enter the picture. Many of the tools for such a toolbox exist and would only have to be integrated into a common platform, while others would require research and development. An Energy Services group integrating various parts of ISU – with the Leopold Center leading the agricultural effort – could serve this function well, bring in valuable research dollars, and continue the proud land-grant tradition of directly assisting the citizenry. No sector has received less study or holds greater potential for both energy efficiency and distributed renew-

ables than agriculture. In fact, agriculture cannot be sustainable without such an effort. It is time for the Leopold Center to return to its roots.

Nitrogen remains a good example. In 2008 Iowa farmers planted 12.9 million acres to corn, and applied an average of 140lb/acre of nitrogen. At over 33,000 BTU/lb to manufacture, commercial nitrogen applied to Iowa cornfields represents about 60 trillion BTUs each year, costing Iowa farmers roughly a billion dollars. For perspective, that is close to Iowa's entire 2007 residential natural gas usage, and about 30 percent over our entire residential electrical energy consumption. Commercial nitrogen is obviously just one piece of agricultural energy use ripe for Leopold Center leadership.

At what cost? "What will it cost to do nothing?", we ask. In the early years, upwards of \$200 million/year (today's dollars) were put towards soil conservation in Iowa alone. Well over \$100 million of ratepayer funds are now spent annually by the utilities in their energy efficiency programs, and that is just one possible source of funds.

Many states have energy efficiency and renewable programs, but no state has invested significant resources into a grassroots energy district-style approach. It is time for Iowa to lead the nation in local leadership and the development of an energy ethic among all our citizens. Iowa agriculture – and the Leopold Center – are in a position to lead the way.



*Andy Johnson promoted sustainable agriculture and natural resources as a Peace Corps Volunteer, then spent several years with the USDA Natural Resources Conservation Service as Soil Conservationist, District Conservationist, and Resource Conservation and Development Coordinator. He currently lives with his family on the home place near Decorah, where he farms, consults, writes, and raises kids.*



*Paul Johnson also served in the Peace Corps, then was a dairy and Christmas tree farmer for many years before he entered politics. He has served in the Iowa legislature, was chief of the USDA Natural Resources Conservation Service, and Director of the Iowa Department of Natural Resources. He was a principal author of the 1987 Groundwater Protection Act.*

## Environmental scientist joins advisory board

The newest member of the Leopold Center Advisory Board would like to see more projects that create and preserve wildlife habitat in Iowa. It's easy to see why, considering the background of Keith Summerville, assistant professor of Environmental Science and Policy at Drake University.

Summerville teaches courses in conservation biology, entomology, restoration ecology, sustainable development and zoology as well as a beginning course, Foundations of Environmentalism.

"One of my lifetime research goals is to bridge ecological theory and practice to educate scientists and non-scientists alike about the processes that regulate species diversity in our environment," Summerville says. "Ultimately, our success in conservation will hinge on our understanding of the roles that natural processes play in influencing species biodiversity."

Summerville brings a background in landscape and community ecology to the Leopold Center Advisory Board.

"I would like to see Iowa agriculture and the Leopold Center become active partners in habitat preservation," he said. "I think the Leopold Center can be a strong advisor and facilitator of both agriculture and habitat management."

A native of Richfield, Ohio, he has an undergraduate degree in environmental science from Westminster College in Pennsylvania. He earned a master's degree in engineering and a Ph.D. in zoology from Miami University in Oxford, Ohio. Since joining the Drake faculty in 2002, he has tackled a number of research projects on Iowa ecosystems. He's studied the prairie moths that pollinate environmentally-threatened western fringed prairie orchid in central Iowa, and reptiles in Polk County's Chichaqua Bottoms Greenbelt and the Sandhill Prairie. He also received a USDA Managed Ecosystems Program grant to research restoration of prairie insect biodiversity in agricultural landscapes.

In 2005, he joined the Iowa Audubon Society board of directors and has developed plans for its Iowa Important Bird Areas. He also advises the Chichaqua Greenbelt advisory committee as they critique and revise a 10-year master plan for prairie and wetland restorations.



Summerville

# News & Notes

The Leopold Center has received a one-year grant to lead a regional team in moving local food beyond the direct-to-consumer realm into larger-scale, wholesale and retail channels in the Midwest. The Leopold Center will be part of the National Good Food Network, an initiative of the Wallace Center at Winrock International that is funded by the W.K. Kellogg Foundation. The network is establishing regional steering committees to create partnerships across non-profit and for-profit sectors and cultivate learning networks. The network's goal is to build a new kind of food supply chain that incorporates stewardship of the environment, healthy food, fair labor practices, equal access and strong local economies. Other projects are in Salinas and Los Angeles, California.; Albuquerque and Santa Fe, New Mexico; Abingdon, Virginia; Belchertown, Massachusetts; and Heartland, Vermont. Leopold Center Associate Director Rich Pirog is part of the Good Food Network's 17-member advisory board.

Susan Jutz, who operates a Community Supported Agriculture (CSA) enterprise near Solon, is the new representative for Practical Farmers of Iowa on the Leopold Center Advisory Board. She replaces Sutherland farmer Paul Mugge, who had served the past 12 years.

A new web-based ordering system that will bring food directly from farmer to consumer will begin taking orders in October. Each month, farmers will enter a list of their products on-line and shoppers can place orders on the web site, [www.iowafood.org](http://www.iowafood.org). Distribution will occur monthly at the Iowa Food Cooperative location at Merle Hay Mall in Des Moines. The coop requires an initial membership fee and annual fee. Groundwork for the coop was part of a Leopold Center competitive grant, with support also provided by Practical Farmers of Iowa, the Iowa Department of Agriculture and Land Stewardship and Blooming Prairie Foundation.

Farmers who have suffered losses due to the 2008 storms and flooding may still

apply for assistance from the Iowa Farm Disaster Relief Coalition, a collaboration of more than a dozen Iowa sustainable agriculture and faith-based organizations. Farmers may apply for up to \$500 to help offset household expenses. Applications will be reviewed as quickly as possible. A second round of funds is being made available with an October 31 deadline. Applications and eligibility criteria are on the web, [www.iowafarmrelief.org](http://www.iowafarmrelief.org).

Reading an encyclopedia will not lead you to local foods, but you can learn more about the history and current markets for what has become a national trend. World Book Publishing invited Leopold Center Associate Director Rich Pirog to write an article for its 2009 *Science Yearbook*. Pirog's five-page report, entitled "Local Foods: Farm fresh and environmentally friendly," appears in the consumer science section of World Book's annual information supplement. Pirog discusses the U.S. food marketing system and impetus for the local food movement. Read the article on the Leopold Center web site, [www.leopold.iastate.edu/research/marketing\\_files/WorldBook.pdf](http://www.leopold.iastate.edu/research/marketing_files/WorldBook.pdf).

Distinguished Fellow Fred Kirschenmann was selected as one of the 20 "most dynamic individuals dedicated to greening the planet" by a nationwide lifestyle magazine, *Plenty*. Also on the Plenty 20 list were former vice president Al Gore, author Michael Pollan, architect William McDonough and NASA scientist and Iowan James Hansen. The account is in the October/November 2008 issue.

The Leopold Center is supporting a statewide project designed to increase agritourism, a growing segment of the rural economy. Enterprises include bed and breakfast operations; Christmas tree farms; farmers' markets, fruit and vegetable u-picks; hiking, hunting/fishing, and viewing mazes for a fee; retail stores; trail riding and wineries. Producers are encouraged to list their agritourism operations on a new web site hosted by Iowa State University Extension, [www.visitiowafarms.org](http://www.visitiowafarms.org).

## Center bids farewell to loyal counselor, member of first board

More than two decades ago when Neil Hamilton followed legislation creating a new sustainable agriculture center in Iowa, little did he know that he would become one of the new center's longest-serving counselors.

Hamilton, a long-time supporter and advocate of sustainable agriculture, left the Leopold Center Advisory Board in September 2008. He had served in that position since 1987, one of 13 original members of the advisory board.

Hamilton said he had been following the legislation that created the new center and noticed two positions on the advisory board set aside for representatives of Iowa's private universities. "It was a great fit for me, with a background in natural resources management and my work at the Agricultural Law Center at Drake University," he said in a recent interview. "I knew that the Center was a significant development in moving toward a more sustainable agriculture. I also could see that interesting legal and policy issues would come out of it."

Hamilton chaired the advisory board when they hired the first director, Dennis Keeney. In the early years, the board had the task of establishing the Center's credibility. It had some critics then, as it still does today.

"We were dealing with the unknown – the term sustainability was new, and uncertainty can give rise to suspicion and fear," Hamilton said. "We were very aware that we needed to allocate our resources in ways that benefited the public. We had to decide how and what to spend the resources on. Agricultural research at that time was focused almost exclusively on production. Our job was to balance that at least a little with funds for research on sustainable practices."

The term "sustainable" was not in common use as it is today. However, the Leopold Center's grant program and innovative issue team approach provided a means to discover who was willing to focus research in this new arena. Hamilton said the Leopold Center was able to provide support for research not funded by conventional sources.

Grant applicants were, and still are, required to articulate how the research will further the goals of sustainable agriculture. Research by the late Alfred Blackmer at Iowa State University on the late-spring nitrogen soil-testing protocol is a great example of Leopold Center-funded research that took sustainable agriculture a step forward, Hamilton added.

Hamilton led the effort to broaden the Center's vision to include the community and social aspects of sustainable agriculture. The Center quickly became a leader in looking at issues of food production, transportation and marketing as an effective way to involve consumers in sustainable agriculture. Today, Rich Pirog's work in food miles is widely acclaimed. It was at the Leopold Center's 10th anniversary conference in 1997 that Scheman Center was first asked to locally source ingredients for a "local meal," an effort that has blossomed in Iowa and across the country.

The Center's history with farmer-led organizations such as Practical Farmers of Iowa kept them grounded in real-life problem-solving. Hamilton pointed to the large number of agricultural and environmental organizations that the Center has partnered with as a key to their success. "In supporting organizations that were working toward the same goals as we were, we multiplied all of our efforts," he said.

Hamilton's path to leadership in sustainable agriculture began



Long-time advisory board member Neil Hamilton (right) served under each one of the Leopold Center's directors (from left) Dennis Keeney, Jerry DeWitt and Fred Kirschenmann.

on a diversified 200-acre farm in Adams County. Southwest Iowa was the center of agricultural activism when he was growing up, so those conversations shaped his world view.

He was a 4-H member and a Cub Scout, graduating from high school in Lenox. He attended Iowa State University, graduating with honors and a B.S. in Forestry and Economics in 1976. Hamilton continued at the University of Iowa, earning a law degree in 1979. After teaching for two years at the University of Arkansas, he came back to Iowa to serve as the Assistant Attorney General in the Farm Division.

In 1983, he joined Drake University to set up the Agricultural Law Center. He currently holds the Dwight D. Opperman Chair of Law and is the director of the Agricultural Law Center. Hamilton was instrumental in the formation of the Iowa Food Policy Council, chairing it from April 2000 to December 2006. He also serves on the Seed Savers Exchange board, chairs the Iowa Natural Heritage Foundation board and is the founder and chair of the Slow Food Des Moines Convivium.

Hamilton has authored a number of books, including the award-winning *What Farmers Need to Know About Environmental Law* (1990). His latest book, written with Doug O'Brien and Robert Luedeman, is *The Farmer's Legal Guide to Producer Marketing Associations* (2005).

He lives with his wife Khanh on a 10-acre farm, Sunstead, near Waukee, where they raise fresh vegetables for several local restaurants. In 2004, he donated 12 acres of his family's original farmstead in Adams County to the Iowa Natural Heritage Foundation. This gift of land along with his gifts of leadership and passion for sustainable agriculture are in keeping with his core philosophy.

He likes to paraphrase Aldo Leopold, saying "We can't expect the public to do conservation for us, it is a responsibility we share."

Certainly, Hamilton has done his share – and more. Thank you!



Hamilton





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# Highlight Events

## **Food, health and the land November 10-11**

California physician Dr. Preston Maring will be in Iowa to discuss links between food, health and the environment and share his passion for local food. Maring is Associate Physician-in-Chief at Kaiser Permanente Medical Center in Oakland. In 2003, he helped start a weekly farmers market at the hospital, now offered at 30 other health care facilities in six states. He will speak in Iowa City and Cedar Falls on November 10 and in Ames on November 11. His visit is sponsored by the Leopold Center, the Center for Energy and Environmental Education at the University of Northern Iowa, and the Center for Health Effects of the Environmental Contamination at the University of Iowa. Details on the Leopold Center web, [www.leopold.iastate.edu/news/events.htm](http://www.leopold.iastate.edu/news/events.htm).

## **Learning from the Floods of 2008 December 8**

The Leopold Center and the Center for Energy and Environmental Education at

the University of Northern Iowa are hosting a day-long workshop at the Gateway Hotel and Conference Center in Ames. "Learning from the Floods of 2008: Practical Strategies for Resilience" will look at what happened as a result of the floodwaters and why, and discuss ways to protect Iowa's farming systems, urban systems and river systems. Register on the conference web site, [www.flood.leopold.iastate.edu](http://www.flood.leopold.iastate.edu).

## **Hypoxia in the Gulf October 16**

The Leopold Center sponsored this conference to look at the latest research on water quality and monitoring in Iowa. Presentations and other information from "Hypoxia in the Gulf of Mexico: Implications and Strategies for Iowa" will be posted on the conference web site, [www.card.iastate.edu/hypoxia](http://www.card.iastate.edu/hypoxia).



### **Successful workshop**

Sixty participants from Iowa, Wisconsin and Nebraska gathered at the Neely-Kinyon Farm in Greenfield in September for a "Transitioning to Organic" workshop. The full day of hands-on training was organized by the Iowa State University Organic Ag Program, the USDA-SARE Program, Adair County Extension and the Leopold Center. ISU staff showcased the latest innovations for organic farmers, including toolkits for insect pest and natural enemy identification, soybean rust testing and soil fertility test kits.