



LEOPOLD CENTER  
FOR SUSTAINABLE AGRICULTURE

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## Center to prepare plan for Iowa Legislature

An amendment to a bill passed near the end of the recent legislative session assigned the Leopold Center to generate a local food and farm plan for Iowa. The legislature deemed this “of immediate importance” and the Center must submit the plan to the legislature by January 10, 2011.

The legislative charge reads:

LOCAL FOOD AND FARM PLAN. “To the extent feasible, the Leopold center for sustainable agriculture . . . shall prepare a local food and farm plan containing policy and funding recommendations for supporting and expanding local food systems and for assessing and overcoming obstacles necessary to increase locally grown

**FOOD AND FARM PLAN** (cont. on page 8)

## Farmland ownership: What are the implications for conservation, the next generation?

By MICHAEL DUFFY, Iowa State University Extension Economist

There continues to be keen interest in just who owns Iowa’s productive farmland and what changes are ahead in the next few years. My ongoing study examining farmland ownership here and around the country has produced three key observations about ownership trends, the implications of these ownership patterns and possible future directions.

### Age

The first observation is that the age of the farmland owner is increasing at a rapid rate. In Iowa, the percent of land owned by people over the age of 75 has risen from 12 percent in 1982 to 27 percent in 2007. The percent of land owned by people between 65 and 74 has increased from 17 percent to 27 percent. This means that more than half the farmland in Iowa is owned by someone over the age of 65.

Figure 1 combines data sets to give a rough idea of what has happened to the age of landowners over time. These data come from three different sources, university and

private. (Please contact me for more specific information on the data and the sources.)

This figure shows that approximately 15 percent of the land in Iowa was owned by people over 65 from 1900 through 1930. Then we see a rather steady increase in age of landowners through 1976. There is a drop between 1976 and 1982, but I think this was due to a change in definition from percent of owners to percent of land owned. Since 1982 there has been a steady increase in the percent of land owned by people over 65 years of age.

The increasing age of Iowa’s landowners reflects two phenomena. One is that people, including landowners, are living longer in general. A second occurrence has been the impact of technology in agriculture. Advances in technology have allowed people to farm longer and as a result they need to farm more acres to generate an adequate income from the farm.

Another factor, coupled with the increasing age of landowners, has been the increasing

**FARMLAND OWNERSHIP** (cont. on page 10)

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LEOPOLD CENTER

#### LEOPOLD LETTER MISSION

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

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



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# Research Results

On the Web: [www.leopold.iastate.edu/research/topics.html](http://www.leopold.iastate.edu/research/topics.html)

## Summaries

Easy-to-read summaries are available for these recently completed projects funded by Leopold Center competitive grants. Find them on our Research Results web page.

- Is the meat goat enterprise profitable and sustainable?
- Pottawattamie County Farm to Fork
- New Farmer Jump Start Project
- Strategies to stabilize locally grown produce for year-round sales: A feasibility study
- Integrated soil and weed management production systems for perennial food crops
- Shaping a functional and sustainable biofuels industry through bridging industrial needs with farmer production capabilities

# News & Notes

Leopold Center Associate Director Rich Pirog was a panelist at Monterey Bay Aquarium's fifth Sustainable Foods Institute May 20-22 in Monterey, California. The panel topic was "The True Cost of Food," moderated by food writer Kim Severson of the *New York Times*. The 10-year-old institute involves celebrity chefs and members of the food media. It is an outgrowth of the nonprofit aquarium's Seafood Watch program to raise consumer awareness about the connection between seafood choices and health of ocean ecosystems.

...

Fred Kirschenmann, the Center's distinguished fellow, participated in a news conference held by Farm Aid on June 2. Farm Aid made a pitch for family farm-based economic growth which Kirschenmann has long championed. The press conference took place the day before the U.S. Department of Agriculture convened a conference on rural development in St. Louis. Kirschenmann pointed out that despite recent pushback, large-scale, low-cost commodity production can co-exist with regional and local crop marketing by the endangered midsize farms, and family farms can play a big role in promoting economic recovery in rural areas.

...

Life Cycle Assessment (LCA) has become an increasingly valuable tool for gauging system-wide environmental impacts. LCA is being used to assess the environmental aspects and potential impacts associated with

a product, process, or service by compiling an inventory of relevant energy and material inputs and environmental releases; evaluating the potential environmental impacts associated with identified inputs and releases; and interpreting the results to help the consumer make a more informed decision.

The Leopold Center collaborated on an LCA study with Dalhousie University in Nova Scotia, Canada. Results of the project ("Comparative Life Cycle Environmental Impacts of Three Beef Production Strategies in the Upper Midwestern United States") have been published in the 2010 *Agricultural Systems* journal. A Question and Answer document about the project and the journal article are available on the Leopold Center web site at: [www.leopold.iastate.edu/research/marketing\\_files/LCA.html](http://www.leopold.iastate.edu/research/marketing_files/LCA.html)

...

The Northeast Iowa RC&D, with funding from a Leopold Center competitive grant, has been offering workshop sessions to help local food producers and farmers build (and maintain) their own websites that will allow them to sell their products on-line. The first workshops in Decorah and Creston included instructions on website design, hosting and development, updates and technical support. For more information, contact Lora Friest, [lora.friest@ia.usda.gov](mailto:lora.friest@ia.usda.gov). To participate in future workshops, contact Brad Crawford, [brad@northeastiowarcd.org](mailto:brad@northeastiowarcd.org), (563) 864-7112.

# g&a WITH THE DIRECTOR

## A final note from Jerry DeWitt



On one of my last days as Leopold Center director, I had been sorting through the many souvenirs of my 38-year career at Iowa State and the Leopold Center. I came across a piece I wrote in the 1990s on the protection of natural resources that is surprisingly suitable for recycling in 2010.

Here are my “ten steps for natural resource protection/action,” still good today.

### 1. Technology will not save us.

We cannot count on an endless supply of “silver bullets” to solve our environmental problems.

### 2. Attitudes leading to behavior change will make the difference.

People who choose to change will be more likely to continue doing what is needed for preserving their natural resources.

### 3. Personalizing natural resources and taking ownership are needed.

Aldo Leopold encouraged us to be citizens of the natural world, and his advice remains valid.

### 4. Policy and practice must be addressed.

We can't protect our natural resources without rules and farming practices that are created to work together to look after our soil and water.

### 5. Listen and learn and not exclude.

Look for the things that unite us as good stewards of the land instead of focusing on the points that divide us. There are many good ways to farm.

### 6. Natural resources are not someone else's worry.

We're all in this together, rural and urban dwellers alike. The Floods of 2008 showed us how closely connected the farm and town are when faced with nature's force.

### 7. Interface, not face off with natural resources.

Look for ways to be one with the land and water—Iowa's natural resources are not adversaries to be conquered.

### 8. Don't subscribe to double standards.

No, the problem is not just your neighbor's, the big farmer's, the city council's, or the county board of supervisors'.

### 9. People will make the difference, not the organizational structure.

This is especially critical now, when our governmental organizational structures are economically stressed or downsized. Citizens need to be more proactive in looking for solutions to their local dilemmas.

### 10. Delete the term environmentalist from our vocabulary.

John F. Kennedy said, “For, in the final analysis, our most basic common link is that we all inhabit this small planet. We all breathe the same air. We all cherish our children's future. And we are all mortal.”

These are my last words speaking for our soil and water.

## Lois Wright Morton joins Leopold Center team

Lois Wright Morton, an Iowa State University professor of sociology, became the Leopold Center's interim director on July 1. Her research and extension focus is natural resource management and how citizens work together to solve the problems of their physical and social environments. She has published extensively on rural food deserts, citizen-led watershed management, civic structure and rural health. Wright Morton currently serves as the project director for the four-state Heartland Regional Water Quality Coordination Initiative and leads the ISU Extension Leadership and Performance-based Environmental Management project—a farmer-led watershed management program.

Before coming to ISU to work as a rural sociologist in 1999, she was associated with the Extension Service at Cornell University in Ithaca, New York. She also has been an instructor at Syracuse University and raised fruits and vegetables on 30 acres of land in upstate New York. Wright Morton, who is a native of Ohio, received a Ph.D. in Development Sociology from Cornell University. She brings a unique sociological/community development perspective to the Center's key initiatives in ecology and food systems.

Look for a more extensive interview and comments from Lois Wright Morton in the fall issue of the *Leopold Letter*.



Lois Wright Morton at Ada Hayden Lake north of Ames. Photo by Nick Van Berkum.

# Center project pays dividends for Iowa farmers and communities

By CORRY BREGENDAHL, Assistant Scientist

How often do your area farmers or farm-based business owners get together with their direct competitors, government regulators, food processors, food distributors, retailers, restaurant owners, technical service providers, non-profit supporters, local elected officials, health providers, Extension staff, food service directors, school administrators and others to consider the hot local issues in food and agriculture? Probably not very often, but this is precisely what happens on a regular basis for the participants in the Leopold Center's Value Chain Partnerships (VCP) project.

## VCP beginnings

VCP is an Iowa-based network of food and agriculture working groups. It began in 2002 with funding from the W.K. Kellogg Foundation and matching support from the Leopold Center and Iowa State University; additional support came from the Wallace Center for Sustainable Agriculture in 2006. VCP has evolved since then with the shifting of existing working groups and the creation of new groups. The Value Chain Partnerships project now includes six working groups:

- Pork Niche Markets (2001)
- Regional Food Systems (2003)
- Small Meat Processors (2006)
- Fruit and Vegetables (2006)
- Food Access and Health (2010)
- Grass-based Livestock (2008)

The groups work together and separately to address issues in agriculture based on their respective missions. Coordinating their formation, funding and maintenance has been no easy task, and has required cooperation, human and financial resources, commitment and more than a few open minds. Yet evaluation shows that project partners say it's been worth it.

A concept used in guiding VCP working group activities is the community of practice model. Working groups are encouraged to attract people who share a concern

for a set of problems and who deepen their knowledge and expertise in this area by interacting on an ongoing basis.

## Assessing original groups

Recent evaluations of the first four working groups show that VCP and its partners have become respected leaders statewide. VCP's role in strengthening the position of food and farming enterprises has focused on knitting together enclaves or islands of previously unconnected people, groups and activities, thereby creating a culture of collaboration. The working groups and local partners collectively have leveraged nearly \$2 million, as well as many hours of in-kind time, to support their efforts. Cumulative meeting attendance in these four working groups is in excess of 650 people, with average attendance for one group rising from 36 in its early years to 86 in 2009.

Impacts of the work have been heartening. From 2006-2008, four local groups involved in the Regional Food Systems Working Group covering 27 counties collectively increased local food sales by nearly \$1 million. These groups also measured substantial increases in the number of producers selling local food to local businesses, the number of local businesses buying and/or selling local food, and the amount of seed money these groups were able to award to local food-based businesses and farmers in their geographic area. In the Pork Niche

Market Working Group, two direct competitors decided to share truck space taking their products to market, saving them tens of thousands of dollars.

Other benefits are apparent as well. Partners in the working groups report they are spending more of their time on local and regional food work than they did a year ago; their organization is changing organizational policies and guidelines to better support such work; they either initiated or participated in new collaborations or projects as a result of working group participation and the act of partnering with others has helped them connect their work with public policy change. Positive policy changes include the creation of "buy local" purchasing policies, changes in enforcement of state regulations that formerly limited health facility purchases of local food, creation of a county-based food policy council and local food coordinator and school participation in food systems work.

## The future

Evaluation of VCP shows that the community of practice model has been effective at engaging partners all along the value chain. The regular interaction breaks down real or perceived barriers, builds trust and prompts collaboration. Collaboration builds credibility for the work at local, regional and state levels, which attracts new partners and resources. It also generates considerable interest in replicating the model in new places, which leads to new opportunities and challenges for the people doing the work.

The working group model was so successful at bringing people together and creating opportunities in food and agriculture that two additional groups outside the project have been formed with assistance or leadership from the Leopold Center. They are the Farm Energy Working Group and the Mid-American Agroforestry Working Group.





TOWARD A SUSTAINABLE

Future

## Anticipating changes

*Science is even more changeable than theology. No man of science could subscribe without qualification to Gallileo's beliefs, or to Newton's beliefs, or to all his own scientific beliefs of ten years ago.*

– Philosopher Alfred North Whitehead (1861–1947)

How do creative leaps in business, science or art take place? In the book *Smart World* (Harvard Business School Press, 2007), Richard Ogle presents an interesting theory about the origins of world-changing events, especially those in business. He suggests that we often think significant change occurs as a result of a singular event—a genius such as Einstein comes up with the Theory of Relativity—and forever changes the world of science. This theory of change is grounded in the philosophies of Plato, Descartes and modern rationalism. But our modern science of networks lays out a very different scenario for change. While the science of networks can be traced back to the early 1700s, its application to how change takes place is quite recent. (See, for example, Mark Buchanan, *Nexus: Small Worlds and the Groundbreaking Science of Networks*, W. E. Norton, 2002.)

Based on this science of networks, Ogle suggests that significant changes in business and other human activities actually take place as a result of “idea-spaces” which evolve through small networks, and create the opportunity for significant changes. For example, we often attribute the evolution of cubism in art to the sole genius of Picasso. However, Ogle points out that small networks of changes were taking place in the world of art at the time, which created the “idea-space” that enabled Picasso to put these innovations on canvas, triggering a revolution in art.

The example of cubism in art reveals how lengthy periods of relative stability can be punctuated by staggering changes in a relatively short period of time. A network of “idea-spaces” creates the context in which singular events can produce significant changes.

What does this have to do with sustainable agriculture? Simply this: Our industrial economy, and the industrial food and agriculture system that has been shaped by it, have enjoyed a rather long period of relative stability. So much so, in fact, that many of us cannot imagine any significant changes taking place in our food system anytime soon—a fact that has sometimes been discouraging to those of us who sense a need for a more sustainable agriculture.

But a network of new idea-spaces definitely has appeared in our food and agriculture world. In a recent article in the *New York Review of Books* (“The Food Movement, Rising,” June 10, 2010), Michael Pollan has clearly articulated some of the many ideas that have recently emerged in our food culture. While some of these ideas were first put forth in the early 1970s, they only recently have formed an idea-space network. And Pollan, a master of clever one-liners that encapsulate big ideas, refers

to this “idea-space” as eating “beyond the barcode.”

What will emerge out of such a new food idea-space is, of course, unpredictable. But, what is predictable is that this new idea-space is a fertile environment for significant, unanticipated changes that could radically alter our food and agriculture system, and provide new business opportunities for anyone ready to take advantage of those changes.

Ogle makes another observation that also may be instructive for us as we prepare for an uncertain future in our food and agriculture world. He points out that while new idea-spaces, such as the ones we are seeing in our food culture, set the stage for incredible changes, they also create the conditions for resistance to change. Some of us may

be attracted to the new idea-space and embrace it, but others remain confined in their old idea-space and do all they can to prevent change.

The trick here, of course, is determining which idea-space is reflecting what is happening in the real world, and which idea-space is based on unrealistic, wishful thinking. If the new idea-space is a reflection of what is happening in the real world, then it provides us with enormous opportunities for developing new businesses and innovative ways of solving problems, while the businesses locked into the old idea-space will become increasingly dysfunctional.

This is where some insights from Alfred North Whitehead may be additionally instructive. Whitehead pointed out that as our understanding of the inner workings of nature increases, we need to adjust our theories of how the world works to fit the newly discovered realities. Continuing to adhere to the old paradigms, while the real world is revealing new realities, is what he called the “fallacy of misplaced concreteness.” We begin to behave as if the concreteness is in our theories of how the world works, instead of based in the emerging real world. (*Science and the Modern World*, 1925).

Whitehead went on to point out that adjusting our theories to conform to our ongoing discoveries of how the world works, is a constant “process” and, therefore, we need to constantly anticipate changes in how we view the world. No one can continue to subscribe to the scientific beliefs of ten years ago. The same probably holds true of our sustainable agriculture beliefs of ten years ago.

Adjusting our theories to conform to our ongoing discoveries of how the world works, is a constant “process” and therefore, we need to constantly anticipate changes in how we view the world.

*Richard Ogle*

# Determining when waterways work best,

By PHIL DAMERY and JERI NEAL, Ecology Initiative

“Essentially, all models are wrong, but some are useful.”

– George E. P. Box, Professor Emeritus of Statistics, University of Wisconsin-Madison

Both federal and state policymakers use numbers from computer models to help inform conservation and land-use policy decisions. Long before policy makers see them, technicians enter site-specific agronomic and geographic data into the program; through a series of complex mathematical equations, the model then simulates the agroecological impact of the specific scenario. Most models have been designed to provide a specific kind of analysis and a certain kind of information for the user.

Thanos Papanicolaou, a University of Iowa hydroscience engineer with a flair for integrating models and mathematics, and Lee Burras, an Iowa State University professor of agronomy with a passion for the soils of Iowa and how they change over time and with use, decided to join forces and see what they could contribute to our working knowledge about using a popular NPS (non-point source) model, WEPP—Water Erosion Prediction Model. Their work is being funded

by a joint Leopold Center Ecology-Policy Initiative project, “Impacts to the land-water-human system of rural Iowa from high-intensity continuous maize production.”

In 2008, when the investigators were considering this project, farmers were experiencing record high corn prices, due in part to increased demand from the biofuel industry. Because of the high prices, analysts were predicting that more Iowa farmers would be inclined to break the “standard” corn-soybean rotation in favor of planting corn in fields where corn was planted in the prior year—a continuous corn rotation.

Though some agricultural benefits could be derived from continuous corn rotation—increased soil organic matter resulting from corn residue left on the field—much more fertilizer would need to be applied. This arguably could result in reduced downstream water quality due to the amount of runoff typically found in a corn-cropping system. (In this case, runoff refers to any water that exits the field by moving above or below the soil surface.)

In order to address runoff concerns, many farmers in southeastern Iowa install grassed waterways. These are areas where water from neighboring fields collects into a single flow. The waterways are planted with grasses, which reduce runoff, sediment transport, and gully formation. They function by slowing the water as it leaves the field, trapping sediment and absorbing nutrients from the runoff.

The current specifications for grassed waterways in Iowa are well tested and consistently applied. They specify width, depth, slope, acceptable types of grasses, etc. Interestingly, they do not address waterway length. It has largely been assumed they should extend to the head of the swale, with “head” being somewhat vague. As a result, uncertainty exists about



*The South Amana Catchment is part of the Clear Creek Watershed. The larger watershed is located in Iowa and Johnson counties.*

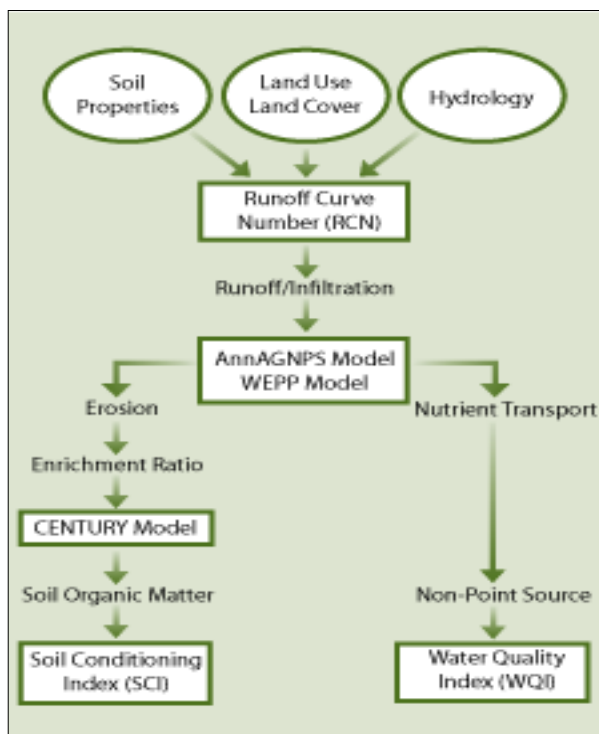
optimal waterway lengths. Field-testing to determine the most effective length can be costly, and the results are site specific. Computer models, which can simulate area hydrology as well as grassed waterway lengths, require careful integration by a modeling expert, but the resulting integration can be applicable to a wide variety of models and modelers.

## Updating guidelines

Given the potential for changing agricultural land use in Iowa, the Leopold Center acknowledged the need for updated guidelines and funded the study by Papanicolaou and Burras to address the issue.

Papanicolaou started by calibrating a well-established model, the Water Erosion Prediction Model (WEPP) to a section in Iowa County’s Clear Creek Watershed, the South Amana Catchment (SAC). Calibration involves collecting site-specific field data as well as historical data from different agencies and sources. Basic input requirements for the computer-based model include climate, topography, soil and land management. Papanicolaou calibrated the program to the SAC and honed in on the grassed waterways.

What waterway length offers the best conservation benefits? In other words, which works best to reduce the greatest volume of water and sediment leaving a given field? In the SAC, grassed waterways are generally 250 meters on .2-6 percent slopes for drainage areas less than 12 ha. Papanicolaou tested



*A model may be used with other equations and parameters to generate user-friendly indexes. See box on opposite page for definitions of these tools.*

# an art and a science

waterways in six different lengths: 100, 200, 300, 400, 500 and 600 meters. He assumed brome grass as the cover in the waterway.

He found, in storm events with the greatest volume of rainwater, 500 meters is a critical length for reducing sediment loss, and a 600-meter length provides the greatest reduction in runoff volume. He also learned that if the drainage area gradient was above 3 percent, the hydrology of the hill slope and soil saturation were the main considerations in determining the effectiveness of the waterway.

## What results mean for farmers

According to Papanicoloau, findings such as these aid officials as they make predictions and develop guidelines and policy for farmers and landowners.

“I think policy decision-makers are very much paying attention to similar modeling efforts,” he said. “They use reliable models such as the ones we are using. The information [we generate] is conveyed to the USDA decision-making people who then coordinate with the NRCS offices and then to the farmers.”

According to John Sellers, Jr., Corydon-area farmer and Leopold Center Advisory Board member, farmers in southern Iowa could have trouble implementing the guidelines.

“There are not many fields in southern Iowa that are large enough for a 500-meter grassed waterway. Most of our focus is on waterways with sufficient width and slope,” says Sellers.

If a grassed waterway is currently installed the length of the field and is less than the recommended 500-600 meters, Papanicoloau recommends site-specific waterway modifications that can reduce runoff and sediment loss.

“Depending upon the characteristics of a given field, you can play with the width and gradient of a waterway. The shape of the channel can also be adjusted to better fit the situation.”

## Universal application

Those working with computerized agricultural models will definitely find this work valuable. Though the specific findings regarding threshold waterway lengths are only directly

applicable to southeastern Iowa and parts of western Illinois, the mathematics used to operate the model are universal and can be used in a variety of models in locations across the United States.

This is one step toward fine-tuning a model to make it more robust and useful, and it is important because a lot of expensive decisions can be based on the model predictions. But, investments in the models will never pay out in conservation benefits unless the practices actually go on the land. Conservation performance is as much economics and community culture as model precision.

Sellers agrees with this concept: “It’s a hard sell on \$5,000/acre ground no matter

how you design it. And if grandpa and dad didn’t do it, I probably won’t either. In the end, it’s really about a conservation ethic.”

The second year of the funding for the project will more directly involve Burras. He plans to expand on Papanicoloau’s findings. Given the emphasis on predicted reductions in runoff volume and sediment yield, Burras will step back and ask how changing soil conditions in Iowa might or might not impact these model predictions.



*A grassed waterway in Iowa. Photo courtesy of NRCS.*

## Knowing the differences: Equations, models and indexes

### Example of an equation

- Runoff Curve Number (RCN): This algebraically generated number has been used by engineers for decades to estimate the amount of water that will leave a given field.

### Examples of computer-based agroecosystem models

- Annualized Agricultural Non-Point Source (AnnAGNPS): This predicts average annual fluxes of water, sediment, nutrients and pollutants in watersheds ranging from 200 to 1650 km<sup>2</sup>
- Water Erosion Prediction Project (WEPP): This predicts the amount of erosion (tons per acre) that will occur each year from a given agricultural field into a small watershed.
- CENTURY Soil Organic Matter Model (CENTURY): Simulates carbon, nitrogen, phosphorus and sulfur dynamics through plant/soil interactions for different ecosystems through an annual cycle over time scales of centuries to millennia.

### Examples of indexes (the final measure)

- Soil Conditioning Index (SCI): An index used to evaluate the effects of management practices on soil organic matter. (This information can be generated by a model.)
- Water Quality Index (WQI): An index used to evaluate water quality in Iowa water bodies. The scale ranges from 0-100; 0 = poor, 100 = excellent. (This information can be generated by a model.)

### Putting it all together – the flow diagram

Some inputs and models that experts may use have a flow diagram to arrive at one number that describes water quality and / or soil quality. See example on opposite page.

## CENTER TO PREPARE PLAN FOR IOWA LEGISLATURE

**FOOD AND FARM PLAN** (continued from page 1)

food production. . . . The plan shall include recommendations for short-term and long-term solutions, including but not limited to the enactment of legislation.”

Led by associate director Rich Pirog, a team of Center staff and interns will spend the summer gathering data on the current local food situation in Iowa. A food summit held June 24 in Ames brought together stakeholders representing a variety of groups and interests to offer input for the plan. An electronic survey and regional listening sessions will be conducted later in the summer to gain additional information. No new funds were appropriated for the Center to produce the document for the lawmakers.



More than 165 farmers, processors, retailers, educators and agency personnel met June 24 to explore obstacles and discuss strategies for expanding Iowa's local food system. **Above:** Bob Mulqueen with the Iowa Office of Energy Independence. **Top Left:** ISU extension horticulture specialist Eldon Miller, Iowa Cattlemen's Association director Tom Shipley and outgoing Leopold Center director Jerry DeWitt talk during a break. **Bottom Left:** In the morning session, attendees offered what they thought were key obstacles, then split into small groups for further discussion.



## Conservation Station brings message to classes

By MARY SWALLA HOLMES, Iowa Learning Farm Conservation Liaison

The Leopold Center is proud to be one of the partners that support the Iowa Learning Farm (ILF) as it reaches new audiences this year. ILF is building a culture of conservation within the next generation by providing free resources to teachers. The six-part video series and the new Conservation Station offer teachers the opportunity to bring a field trip right to their school.

“The ILF videos and the Conservation Station activities brought it all together. The students were able to see the connections between all the issues we've been studying,” explained Ames educator De Anna Tibben. She used the ILF videos throughout the year with her ninth-grade Earth and Space Science students, focusing on working landscapes. The students looked at the economic, environmental and recreational aspects of land use in Iowa. “The fact that these water issues are right here, right in our own homes and areas, made the learning truly meaningful for the students. They have a vested interest in water conservation since it is their water that is shown!”

The Conservation Station, funded in part by the Leopold Center's Ecology Initiative, has a rainfall simulator that helps students understand the importance of residue management,

ground covers and tillage practices.

“The rainwater runoff demonstration put abstract ideas into concrete experiences for the students. By having both the surface runoff and the groundwater infiltration water jars visible for the students, the activity was very useful,” said Tibben. “The students could make first-hand observations of how much water did runoff versus infiltrate. We had talked about runoff before, but the students didn't connect an understanding of what that truly meant.”

As more and more teachers adapt the ILF videos and curriculum to their classrooms and schedule a session with the Conservation Station, a new generation of Iowans will begin to better understand their important role



in conserving Iowa's resources. Already, the Conservation Station is scheduled to appear at more than 50 events in 2010 and is being scheduled into 2011.

To request the free DVD of the conservation video series, send an e-mail to: [ilf@iastate.edu](mailto:ilf@iastate.edu). To schedule the Conservation Station for your event, call 515-294-5429. Visit the Iowa Learning Farm Web site at [www.extension.iastate.edu/ilf](http://www.extension.iastate.edu/ilf) for more information and resources.

The back door of the Conservation Station opens to the rainfall simulator, which shows the effects of surface runoff and groundwater infiltration. Visitors walk through the front part of the trailer to view interchangeable learning modules about soil, water prairies and wetlands.



## Progress in pawpaw processing project

By MARY ADAMS, Outreach and Policy Coordinator

Patrick O'Malley, an ISU Extension commercial horticulture field specialist, has headed several Leopold Center Ecology Initiative projects that investigated the potential for growing pawpaws in various areas of Iowa. With information gained on how and where to produce pawpaws, O'Malley is taking the next step to determine the market potential for this crop in Iowa. He is starting the second year of a Leopold Center Marketing and Food Systems Initiative grant (M2009-20) "Enhancing Value and Marketing Options for Pawpaw (*Asimina triloba*) by Developing Pulp Separation and Preservation Techniques" to look at how Iowa farmers might take advantage of this unique fruit.

O'Malley is working closely with Lester Wilson of the ISU food science department to develop pulp separation and preservation techniques. Six hundred pounds of pawpaw fruit from the Louisa County orchard site were grown, picked and delivered to ISU last fall. The pulp separation from the fruits was carried out with an existing pulper at the Food Science and Human Nutrition Department's Center for Crops Utilization Pilot Plant.

After several different modifications to the ISU pulper, researchers were able to efficiently operate the pulper for mechanically processing pawpaws without any damage to the seeds. After several attempts, the last run through the modified pulper produced a yield of 53 percent seed- and skin-free pulp. The researchers noted that enzymatic

browning of the pulp occurred within minutes of processing, yielding a burnt orange color on the pulp exposed to air. Therefore, pulp should be processed or packaged as soon as possible. Samples of the peel, pulp and seeds were frozen at -20° C for later analysis of seed oil and quality of the pulp. Freezing and thawing of the whole pawpaw also were tested. Freezing does not seem to alter the pulp color, which will be evaluated after one year of frozen storage.

Plans are to refine the pulping methodology further with the 2010 pawpaw crop, characterize the pulp, test preservation techniques, and determine the best uses in food products. Researchers again will use the pawpaw fruits from the 220 trees at the Louisa County Conservation Chinkapin Bluff Recreation Area cultivar trial orchard. The pulp separation again will be carried out at ISU and will allow for tests to see if the final modifications made to the pulper last year can consistently produce the clean pulp needed for use in recipes.

Below: Pawpaw processing at ISU food science laboratory.



Partners in this project include the Louisa County Conservation Board, which provides the land and mowing between rows of pawpaws. Red Fern Farm, currently the largest pawpaw grower in Iowa, represented by Tom Wahl, will provide consulting on growing and processing pawpaws and help with outreach. Ray Grogan, pawpaw grower Iowa/Arkansas, will help with maintenance and harvest of pawpaws. O'Malley will maintain the trees and harvest and conduct outreach, while Wilson, with student help, will work on mechanical processing methods, preservation and recipe development.

## Center issues 2010 Request for Pre-proposals

Iowans with ideas for testing sustainable agriculture alternatives will want to check out the 2010 Request for Pre-proposals (RFP) now available from the Leopold Center. Each of the three initiative areas—ecology, marketing and food systems, and policy—is looking for innovative new projects to enhance the Center's long-running competitive grants program. The RFP contains specific information about what the Center is looking for and how to apply for the competitive grant funding.

The Center will accept pre-proposals from investigators representing any Iowa nonprofit organization/agency and/or educational institution (such as soil and water conservation districts, schools, colleges, universities and regional

development groups). The Center places special importance on the involvement and collaboration of farmers, landowners, and farm-based businesses in the pre-proposal process.

A two-to three-page concept paper on the project and how it fits with the Leopold Center mission and specific initiative objectives is all that is required at the pre-proposal stage. If the concept is approved, the investigators will be asked to submit a more detailed full proposal later this year.

The RFP can be downloaded from the Center's web site. Hard copies can be obtained from the Center office by calling 515-294-7311 or emailing [leocenter@iastate.edu](mailto:leocenter@iastate.edu).



For inquiries about the initiatives' interests in this first round of project competition, contact the appropriate program leader: Lois Wright Morton for Ecology or Policy (515- 294-3711, [lwmorton@iastate.edu](mailto:lwmorton@iastate.edu)) and Rich Pirog for Marketing and Food Systems or for any general questions about the pre-proposal process (515-294-1854, [rspirog@iastate.edu](mailto:rspirog@iastate.edu)).



## Colletti joins Leopold Center Advisory Board as ISU representative

Joe Colletti, the newest member of the Leopold Center advisory board, is no stranger to the Center or its work. He has benefited from Leopold Center work in the past when he served on one of the Leopold Center's first multidisciplinary research groups, the Agroecology Issue Team formed in 1991, when he was a faculty member



in the forestry department, now natural resource ecology and management. When asked why he's interested in helping the Leopold Center for Sustainable Agriculture, he said that he thinks it is a facilitator

of change in technologies, management practices, and public policy in the field of agriculture.

As the senior associate dean for the College of Agriculture and Life Sciences at

I highly value the work done here and think that good science facilitated by the Leopold Center can help farmers of all scales.

Iowa State University, Colletti is responsible for the budgets of the college. His decisions affect the training of the future leaders and practitioners in agriculture, what research is

being done; and what faculty is doing with that training and research. It should be no surprise that he wants to see the best of each come out of Iowa State and give them the best opportunity to succeed.

One of the things he wants to focus on while working on the advisory board is to see where the gaps are in research being conducted now that can be filled with new research that ranges from local to global and having the potential of high impact.

"I highly value the work done here and think that good science facilitated by the Leopold Center can help farmers of all scales," said Colletti. "The research done through the Leopold Center helps us to understand the benefits and costs of all farming practices and can affect national policy."

## Student workers spice up Leopold summer quarters

The Leopold Center is fortunate to have three new student associates working in various capacities this summer. Two are summer-only employees and one will continue to assist the Center staff during the coming year.

### Law student



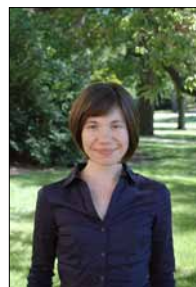
Judd Jensen, a third-year law student at Drake University, is specializing in agricultural and environmental law. During his first two years of law school, he has been a legal intern for the Iowa Environmental

Council and the Air Quality Division of the Iowa Department of Natural Resources. This past spring he had the privilege of being a legislative intern with Iowa state representative Roger Wendt. When not working or attending class, Judd is often found along a river or lake fishing for trout, catfish and anything else he can catch. A native of Montana, Judd also is an avid hunter and outdoorsman, and enjoys horseback riding and nature photography.

This summer Judd will be assisting the Leopold Center with the Iowa Local Food and Farm Plan by researching and identifying recent U.S. state legislation, including mandates to develop reports on local and regional food. In addition to his legal re-

search duties, Judd will be helping the Center update and revise the Iowa local food resource guide and conduct focus groups with stakeholders across the state.

### Policy student



Juli Obudzinski joined the Leopold Center as a summer intern from Tufts University (Boston), where she is currently pursuing a graduate degree in food and agricultural policy. Prior to graduate school, she lived

and worked in Washington D.C., where she was involved in the region's local food community in many different capacities. She recently worked at the U.S. Department of Agriculture, where she coordinated grant programs for agricultural research and worked on the People's Garden Initiative. She also has been an apprentice on an organic farm, a volunteer coordinator at an urban farm and education center, and was one of the lead organizers for a new farmers' market in the D.C. area. She is an avid biker, urban gardener and snowboarder, and enjoys being outdoors as much as possible. A native of Wisconsin, she also enjoys cooking from scratch, making cheese and brewing beer.

While at the Leopold Center, Juli will be conducting research for the Iowa Local

Food and Farm Plan. She will be responsible for collecting data and background information, conducting on-site interviews of several of the Regional Food Systems Working Groups, and assist in the preparation of a state-wide stakeholder working session. She also will be engaged in fieldwork research for the Ecology Initiative on topics related to sustainable biofuel production, establishment of perennial grasses, and diversified cropping systems.

### Graphic designer



Tina Davis, an ISU senior in graphic design, will be graduating in Spring 2011. She is a native Iowan and grew up in Des Moines. Tina says, "I enjoy painting, reading and traveling. I have been lucky enough to

visit Spain, China, Bermuda, much of the continental United States and even Hawaii." She found her way to the Leopold Center as a replacement for Tori Watson, the previous design assistant, who graduated in May 2010 and took a job in Denison. Tina has already begun working on the Center's web site, and is designing a logo for the newest Value Chain Partner group member, the Food Access and Health Working Group.



LEOPOLD CENTER  
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# Highlight Events

## July 22

“Greenhorn Grazing Workshop #3,” 1:30–7 p.m., McNay Research Farm, 45249 170 Ave., Chariton. This five-session course will cover concepts relevant to all producers of grass-based livestock. Course development was supported by a three-year Leopold Center grant. Participants are urged to attend all sessions, but fees for individual sessions are available. Contact: Joe Sellers, (641) 203-1270, [sellers@iastate.edu](mailto:sellers@iastate.edu).

## August 1

Chichaqua Field Day. 1:30–4 p.m., Chichaqua Bottoms Wildlife Area, 8700 NE 126th Ave., Maxwell. Linked to Ecology Initiative project “Grazing prairie: Improving species diversity while maintaining cattle and goat productivity and resting home pastures.” Contact: Linda Appelgate, (515) 371•5419, [Linda.appelgate@ia.usda.gov](mailto:Linda.appelgate@ia.usda.gov).

## August 10

“Iowa Pollinator Conservation Short Course,” 9:30 a.m.–4 p.m., Reiman Gardens, Ames. The course will inform conservationists, land

managers, farm educators, and agricultural professionals on the latest science-based approaches to increasing crop security and reversing the trend of pollinator decline. For registrations, contact Ashley Minnerath, (503) 232-6639 or [ashley@xerces.org](mailto:ashley@xerces.org).

## August 22

“Mechanization on Vegetable Farms,” Fruit and Vegetable Working Group Field Day, 2-5 p.m. with supper to follow. Andy and Melissa Dunham’s Grinnell Heritage Farm, 1933 Penrose Street, Grinnell. ([www.grinnellheritagefarm.com](http://www.grinnellheritagefarm.com)) For more information, contact Malcolm Robertson, (515) 294–1166, [malcolmr@iastate.edu](mailto:malcolmr@iastate.edu), or Margaret Smith, (515) 294–0887, [mrgsmith@iastate.edu](mailto:mrgsmith@iastate.edu).

## June – September

Iowa State University Research and Demonstration Farm Field Days, 13 events at research sites across the state. For more details see, [www.leopold.iastate.edu/news/events/isu.pdf](http://www.leopold.iastate.edu/news/events/isu.pdf)

## More details, events

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

## June – October

Practical Farmers of Iowa Field Days, on topics from grazing, to vegetables to bioenergy. For more information, see [www.practicalfarmers.org/assets/vcalendar/index.php](http://www.practicalfarmers.org/assets/vcalendar/index.php)



The Iowa Learning Farm unveiled its new Conservation Station. See more on page 8.