

Letter

Leopold Center funds 19 new marketing, food systems projects

The Leopold Center's Marketing and Food Systems Initiative has awarded competitive grants for 19 new projects that include development of place-based foods in Iowa, business training for farmers interested in niche markets, online resources for organic food processors and consumer research on differentiated beef products.

The projects, which total nearly \$400,000 for the first year of work, represent a wide range of research, educational and outreach efforts. They are the result of the initiative's second call for preproposals issued in July 2004. Grants

for 10 of the new projects are for one year, and the other nine grants will run for two years.

Initiative leader Rich Pirog said the projects will help Iowa farmers explore and understand a number of new and emerging markets and determine those that will be most profitable. He said many of the projects focus on a growing interest in local, regional and place-based foods and the economic opportunities that are created for farmers and their rural communities.

"We're only beginning to see the potential for sales of regionally grown

food, specialty and place-based foods," Pirog said. "Some of these projects will lay the groundwork for that to happen, and help document the impact of these new markets."

One new project will document the impact of local foods in eight northeast Iowa counties. The University of Northern Iowa's Local Food Project will conduct case studies of the impact created by at least 10 firms that have provided locally grown or processed foods to restaurants, institutions and retailers.

GRANTS

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Energy and agriculture: Making it work

Iowa State University can play a key role in helping agriculture prepare for a certain future of high energy costs, said international energy analyst L. Hunter Lovins.

"Iowa State University research needs to prepare farmers for this reality in terms of efficiency, how to use resources more productively, and

alternatives that will help them do it in a sustainable way," said Lovins, who was the keynote speaker for the John Pesek Colloquium on Sustainable Agriculture in Ames and Centerville March 9-10.

"Everything this university can do to talk about sustainable energy is critically important."

Lovins directs Natural Capitalism, a Colorado-based consulting company that focuses on renewable energy and energy conservation. She said that when oil prices go from the current \$50-\$60 a barrel to \$90 a barrel – the level that some analysts in the airline industry are predicting within two years – "many energy alternatives will begin to make economic sense." The \$90 level equals the price of oil during the 1973 energy crisis when adjusted for inflation, she said.

Lovins said that higher energy costs will mean an end to "business as usual" for industrialized agriculture, which typically relies on energy in the form of electricity, diesel, pesticides and fertilizers.

"If a farming operation continues to view energy as simply a fixed operating cost, it will gradually lose competitive

ENERGY

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Rising fuel costs: What's in store?

With gasoline over \$2 a gallon, agriculture will be one of the first industries to feel the effects of higher fuel costs.

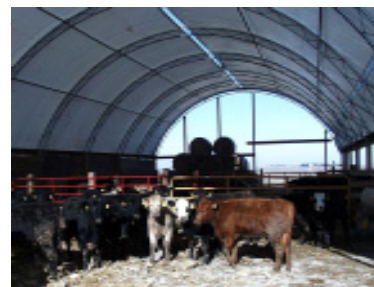
We've asked three experts to comment on different aspects of this issue: immediate reactions on the farm, impacts at the distribution level, and what's in store for renewable energy. We've also asked them about the challenges and opportunities for farmers. See page 6.

The Leopold Center intends to continue the discussion on this important challenge for agriculture.



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Prairie cathedrals Iowa Governor Tom Vilsack has declared 2005 as “The Year of the Barn and Family Farm.” The Leopold Center and other organizations have joined the Iowa Historic Preservation Alliance (IHPA) to explore the role of barns and family farms in Iowa’s history and economy. It is estimated that Iowa once had more than 200,000 barns, often called “prairie cathedrals,” and that only 60,000 remain. As part of the year-long celebration, the IHPA is conducting a barn survey. For more information, contact Rod Scott, (641) 648-4570, rodscott@iowaconnect.com, or go to the IHPA web site at www.iowapreservation.org.

FamilyFarmed.org Leopold Center director Fred Kirschenmann was named “Farmer of the Year” in March during a FamilyFarmed.org EXPO in Chicago. FamilyFarmed.org is a project of Sustain, a nonprofit organization that has been working on a regional food system in the Midwest by establishing markets for organic and sustainable family farms in Illinois, Indiana, Iowa, Michigan, Minnesota and Wisconsin. Based in Chicago, the organization hosts a web site, food label and annual EXPO, and has been working with Whole Foods Market, the nation’s largest retailer of organic foods.

Regional foods The health and safety aspects of locally grown and processed foods are more important to Iowans than the economic benefits for the community. Iowa State University marketing professor Kay Palan conducted a statewide telephone survey and focus groups for the Regional Food Systems Working Group, directed by Rich Pirog at the Leopold Center. They found that 93.6 percent of the 297 people in the telephone survey were unfamiliar with regional food systems. Focus group participants in Sioux City, Ottumwa, Ames and Cedar Rapids would support such a system if the food was of high quality and conveniently available at reasonable prices.

Eco-careers A business world that is moving toward environmental and financial sustainability needs people with different skills and insights. Leopold Center director Fred

Kirschenmann has written a chapter on career opportunities in agriculture and food security for a new book, *The Eco Guide to Careers that Make a Difference: Environmental Work for a Sustainable World* (2005 Island Press). Other chapters focus on current issues and careers in architecture and construction, biodiversity loss, climate change, environmental justice, alternative energy, water quality, ecotourism and business. The book was created by the Environmental Careers Organization, a national, nonprofit organization with offices in Boston, San Francisco and Seattle.

Renewal and hope Paperback and hard cover copies of *Renewing the Countryside: Iowa* are now available for \$20 and \$30, respectively. The book is a collection of 38 stories and eight essays highlighting Iowans who have found a way to make a living in the countryside while supporting their

communities and protecting the environment. Sponsored by the Leopold Center, Iowa Natural Heritage Foundation, Iowa Rural Development Council and Institute for Agriculture and Trade Policy, the book is the second of a series on rural revitalization. Order online at <http://store/rctmarket.org>, or call (866) 477-1521 during business hours.

Sustainable products Thirteen grants totaling more than \$80,000 have been awarded to support research and development for innovative Iowa businesses that focus on sustainably raised flax, switchgrass, produce, pork and dairy products. The grants are from the Value Chain Partnerships for a Sustainable Agriculture (VCPSA) project that is directed by the Leopold Center, ISU and Practical Farmers of Iowa, and partially funded by a grant from the W.K. Kellogg Foundation. More information is on the VCPSA web site, www.valuechains.org.



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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.

Newsletter Editor: Laura Miller

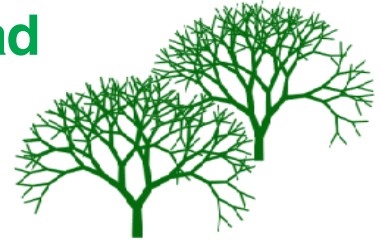
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Meeting the challenges ahead

Science is often misrepresented as the body of knowledge acquired by performing replicated controlled experiments in the laboratory.

Actually, science is something much broader: the acquisition of reliable knowledge about the world. — Jared Diamond



Earlier this semester Wendy Van Dyke, a student in ISU's sustainable agriculture graduate program, presented the results of a study in which she surveyed a cross section of Iowa farmers to find out what they thought about trees on their farms. As might be expected, opinions ranged from farmers who thought trees were very beneficial to farmers who saw them simply as "big weeds." One farmer's comment caught my attention: "Here I am on a century farm," he wrote, "working myself to death and still going broke, and you want to know about trees?"

At the same time that I was reading Wendy's study I was working my way through Jared Diamond's new book, *Collapse: How Societies Choose to Fail or Succeed*. He follows up on a theme developed in his Pulitzer Prize-winning *Guns, Germs, and Steel*, in which he identified reasons why some of the past civilizations failed while others succeeded. His new work explores the failures more fully, concluding that many of the collapses were "self-inflicted ecological suicides."

The demise of Easter Island in the Pacific especially captured Diamond's attention because it serves as a powerful metaphor for our own situation on planet Earth. Easter Island was isolated in the Pacific Ocean just as we are isolated in our universe. After Easter Islanders cut down all of their trees – the source of their ecological health, including the fertility of their soil – they had no place to go, and 70 to 90 percent of the population died.

Diamond raises an interesting question as the drama of the Easter Island extinction played out.

What did the Easter Islander who cut down the last palm tree

say? Did he shout, "What about jobs? Do you care more for trees than for people?" . . . Or maybe he said, "You predict environmental disaster, but your environmental models are untested. We need more research." Or, perhaps his words were, "Never fear, technology will solve our problems somehow. We will find substitutes for wood."

Diamond suspects that Easter Islanders were not stupid or imprudent. They probably followed a logical sequence of decision points, just as we do. We often

- fail to *anticipate* a problem because we have no relevant experience with it,
- fail to *see* a problem once it arrives (we can't see salinization or global warming),
- fail to *try* and solve a problem because of clashes of interest, and
- fail to address a problem because it is *deemed too difficult* to solve, given the available technology.

Given the challenges that farmers face today, it is easy to see why we may follow similar decision sequences.

Fossil fuels (the principal driver of modern industrial agriculture) are being depleted and the shortages will likely drive up prices sharply for almost everything used on farms: fertilizer, pesticides, irrigation, farm equipment and diesel fuel. These cost increases confront farmers at a time when net farm income is already lower than it was in 1929 even with government subsidies.

Climate change may bring more unstable weather conditions and more violent storms, further exacerbating the problem of soil erosion and nutrient run-off. The loss of biodiversity – partly a legacy of modern industrial agriculture – leaves us with a more brittle ecology that will not withstand further degradation, nor readily rebound from further ecological damage.

To address our current problems, Diamond argues against short-term survival strategies and reductionist research that simply develops new technologies for the current system. He advocates for broader "acquisition of reliable knowledge about the world" and our place in it. He says: "Today we are running a worldwide natural experiment. If we don't run it well, then all the world is going to end up in the situation of Easter Island."

I would say that we *do* need to know about trees – and grass, soil microorganisms and the other complex, interdependent life in a healthy biotic community. Specifically, we need the knowledge that will help us:

- **Develop farming systems that use less energy** than any systems developed to date. From an energy efficiency perspective, there are no alternative energy supplies available that can match what we had during the heady days of cheap fossil fuels. Thus, post-modern farms must be able to recycle wastes, use natural synergies, and produce on-farm energy.
- **Restore ecological systems.** Our natural ecological capital is now so eroded that we cannot maintain sustainable productivity in a post-fossil fuel era without significantly improving the quality of our soil and water, and the self-renewing capacity of the entire biotic community (a concept already stressed by Aldo Leopold in the 1940s). Self-renewing systems will likely include more perennial polycultures and take advantage of nature's inherent regenerative synergies.
- **Redesign many of our food and farming enterprises** to serve regional rather than global food systems. In a post-fossil fuel era, foods

DIRECTOR

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Grants fund training programs

GRANTS

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In eastern Iowa, the Limestone Bluffs Resource Conservation and Development (RC&D) Area will use a grant to help grape growers and wineries create the state's first grape-growing region, or American Viticultural Area (AVA). The grant will be used to collect information for the AVA application process and to create a "wine trail" in cooperation with the Iowa Department of Economic Development Tourism Office.

In addition to documenting the impacts of food sales, the new round of marketing grants is targeted to help farmers acquire the skills and training they need to compete in these markets.

Indian Hills Community College in Centerville will receive a two-year grant for its new Land-Based Business/Entrepreneurship program, designed to help revitalize the area's rural economy by increasing opportunities for landowners and developing regional marketing strategies for locally produced foods. Other grants to the University of Northern Iowa in Cedar Falls and the Iowa Small Business Development Center in Urbandale will be used to offer workshops and seminars for farmers and others interested in niche markets. Another project will look at contracts to expand produce marketing opportunities for farmers.

Three grants to the Iowa State University College of Business target the development of new markets for producers. One study will look at how consumers value "organic beef" and "pasture-raised beef" relative to other characteristics such as taste and appearance. A second research project will look at the effects of producer size, environmental positioning and social positioning on restaurants and grocery retailers. A third project will measure the relevant costs of production in niche markets.

No time to waste

DIRECTOR

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produced closer to home will have a competitive advantage over foods transported thousands of miles. Existing models suggest that regionalized food systems need not deprive us of a rich variety, quality or taste. The planet may no longer afford us the luxury of eating kiwi fruit from New Zealand in January, but it can indefinitely provide us with an array of locally grown foods, even for winter months.

Making these changes will be a challenge, but America's competitive advantage has always been in its inventiveness. If we focus our science, imagination and social expertise on creating this new future, our food and farming enterprises not only will survive but also thrive for thousands of years without fossil fuels and without further degrading our ecological resources.

We have no time to waste. Many of us used to think that we had another 25 years or so to design new food and farming systems. But if oil surges to \$60 a barrel this summer (as reported in *USA Today* March 5, 2005) and to \$90 a barrel before the end of 2006, as some industry experts now predict, then we need to concentrate a significant portion of our research on new systems that work for farmers and the planet in a post-fossil fuel, climate-challenged era.

The fact that experienced Iowa farmers are working hard and still having trouble making ends meet should put this research at the top of the agenda.



Quotes are from Diamond's book, *Collapse*, and from his Chafee Memorial Lecture presented at the University of California, January, 2004.

2005 Marketing Initiative Competitive Grants

- **The role of collaborative Community Supported Agriculture:** A community, state and regional study, \$13,429, 1 year, North Central Regional Center for Rural Development, ISU
- **Taste of place:** Place-based foods in Iowa, \$25,000, 1 year, Iowa Arts Council, Des Moines
- **Sustainable agriculture marketing, entrepreneurship and business planning skills,** \$22,750 for each of 2 years, Indian Hills Community College, Centerville
- **Pilot project to identify and measure the relevant costs of production for sustainable agricultural products,** \$16,000 over 2 years, ISU College of Business Department of Accounting
- **Small and midsize Iowa farmer training program:** Marketing entrepreneurship and business planning skills, \$26,000, 1 year, Strategic Marketing Services and Management and Professional Development Center, UNI
- **Reputational and environmental positioning as sources of competitive advantage for sustainable agricultural producers:** Retailer-level effects, \$24,500, 1 year, ISU College of Business Department of Marketing
- **Community economic impact assessment for a multi-county local food system in northeast Iowa,** \$24,450 for each of 2 years, Center for Energy and Environmental Education, UNI
- **Southwest Iowa institutional foods survey and producer training program,** \$18,500 over 2 years, ISU Extension, Malvern
- **Southwest Iowa Entrepreneurial Center:** An achievable product-to-market business model for small/niche ag producers, \$21,742, 1 year, ISU Extension, Corning
- **Development of a regional wine culture in Iowa,** \$14,950 over 2 years, Limestone Bluffs RC&D, Maquoketa
- **Economic viability of local food marketing for restaurant operations and growers/producers in Iowa,** \$39,672 over 2 years, ISU Hotel, Restaurant and Institution Management Program
- **Using contracts to expand produce market opportunities,** \$39,072 over 2 years, ISU Hotel, Restaurant and Institution Management Program
- **Growing Your Small Market Farm Business planning program,** \$19,600 for each of 2 years, Iowa Small Business Development Center, Urbandale
- **Development of resources for organic food processors in the state of Iowa,** \$24,400, 1 year, ISU Department of Food Science and Human Nutrition
- **A proposal to use the conjoint market analysis tool to examine the factors that influence consumer attitudes toward beef products,** \$34,399, 1 year, ISU College of Business Departments of Management Information Systems and Finance and ISU Department of Animal Science
- **Developing an integrated research and outreach program for niche pork production,** \$25,000, 1 year, Practical Farmers of Iowa, Ames
- **Market Maker for Iowa,** \$25,000, 1 year, ISU Extension Value-Added Agriculture Program
- **Organic, natural and grass-fed beef:** Profitability and constraints to production in the midwestern United States, \$31,850, 1 year, ISU Value-Added Agriculture Program and Iowa Beef Center, ISU
- **Assessing the market potential for goat meat among recent immigrants to Siouxland,** \$8,727 over 2 years, ISU Department of Sociology

ON THE WEB: www.leopold.iastate.edu/research/marketing_files/2005grants.htm.

Researchers explore hoop barns for feeding beef cattle

By Laura Miller
Newsletter editor

Visitors to the Armstrong Research and Demonstration Farm in southwest Iowa are doing double-takes when they see the farm's new hoop barn.

The open-ended hoop barn has the familiar half-moon profile, created by a white polyvinyl tarp stretched over curved trusses that are attached to fixed side walls. But the structure is a lot bigger than most hoops – 120 ft. long, 50 ft. wide and 26 ft. from peak to dirt-and-gravel floor. A vent for air circulation runs along the top ridge, and one side wall opens to an outside feed bunk covered by an overhang.

A look inside explains the differences. This hoop barn houses beef cattle – 120 feeder cattle in deep bedded cornstalks – not hogs, farm equipment or hay, typical uses for these structures.

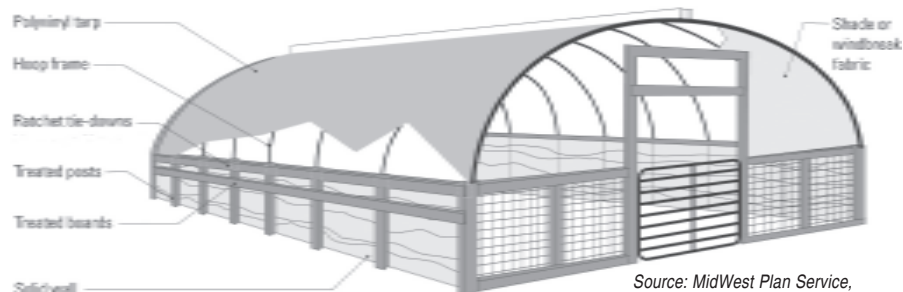
It's also the site of a new research project that focuses on alternative production systems for beef. Data will be collected and analyzed over the next three years for a side-by-side comparison of feeding beef cattle at the research farm: in three pens underneath the hoop structure and a conventional open feedlot with a covered shelter.

The Leopold Center provided a \$20,000 grant to help pay for construction of the hoop barn, completed in November 2004. And Hoop Group II, a re-design of the team of Iowa State University researchers that the Leopold Center brought together to study swine production in hoop barns, will direct the research.

Other partners include the Iowa Cattlemen's Foundation, the Wallace Foundation that owns the research farm, the U.S. Department of Agriculture, ISU Experiment Station, CoverAll Building Systems that adapted the structure for this project, and 21 southwest Iowa cattle feeders and agribusinesses who made personal donations.

Mark Honeyman is an animal science professor who oversees ISU's research farms and is a long-time proponent of alternative systems. He said hoop barns may be a cost effective way for producers to meet more regulations on manure management and treatment of feedlot runoff.

"You don't get rain inside a hoop, so the structure will greatly minimize runoff following a rainstorm," Honeyman



Source: MidWest Plan Service,
Hoop Barns for Beef Cattle, AED 50.

said. "Think of it, a feedlot with minimal runoff. That alone could make a hoop barn more economical than conventional open feedlots, but we don't know yet."

Honeyman said they will be monitoring cattle performance and behavior, as well as the environment inside the hoop barn and runoff and soil quality in and around the barn.

"We'll follow the research model we developed when we began to study pigs and hoops in 1997," he added. "At the time, there was work with pigs in hoop barns in Canada, but we don't know of anyone in Iowa or anywhere else using hoops for fed cattle."

Shawn Shouse is an ISU Extension agriculture engineering field specialist at the Armstrong farm. He said the idea for a beef hoop barn has been discussed for several years.

"Environmental challenges are big ones for open feedlots and hoops are noticeably less expensive than other building styles, but we've always wondered if they would work for beef cattle," he said. "This system could provide the greatest advantage for small and mid-sized beef finishing operations."

The hoop barn opens to the north and south to take advantage of prevailing winds for natural ventilation and to minimize southern sun exposure during the summer. Although the hoop has an enclosure kit for the north end, they decided not to use it the first winter.

"We wanted to see how it would work with just a partial wind break, using bedding bales," Shouse said. "Snow got into the building at times but really wasn't a problem. We're more anxious to see how the animals do in summer months."

The feed bunk that runs along the east wall can be filled from the outside. Under the hoop next to the bunk is a 20-ft. concrete floor that is used when manure is scraped. The rest of the floor is covered with limestone screenings on top of a geotextile fabric.



The prototype has three pens for cattle and a feed bunk that can be filled from outside.

Shouse said the hoop also presents unique management and labor concerns. Each 40-head pen requires about one large bale of cornstalks every week. The bedding, which absorbs the manure, is scraped from the area in front of the feed bunk to the back of the pens. It's also stockpiled outside and composted for land application later in the season.

He said construction costs were higher than expected but still compare favorably to other systems. He estimates the cost at about \$300 per animal space, compared to approximately \$500 per animal space for a total confinement system and \$150-\$200 per animal space for open feedlots. Manure handling for operations under 1,000 head add another \$25 to \$50 expense per animal space.

Mark Bentley feeds about 200 cattle west of Oakland and is one of the individual contributors.

"I really hope it works," he said. "We'd like to expand but we're not sure we could meet all the environmental standards. This system could possibly eliminate some of those concerns."

Honeyman agreed, adding that the project is "a great example of leadership by the Leopold Center. The grant will help put choices on the menu for Iowa producers."

To visit the farm, contact Dallas Maxwell, dallasm@iastate.edu, (712) 769-2402.

Question & Answer: Looking at rising fuel costs

What can farmers do immediately to curb or at least contain energy costs?

High fuel prices present challenges, but maybe also some opportunities to save time and wear-and-tear on equipment.

- **Is this trip really necessary?**

This may be a good question to ask before you start spring operations or head out to check livestock. In some cases, trips may be combined (for example, a one-pass tillage and leveling operation before planting, or checking livestock on the way into town). Spring pre-plant tillage may be counter-productive if soils are wet and plastic, or sloping and subject to erosion. ISU Extension bulletin PM 709, *Fuel required for field operations*, can be used to project estimated fuel use.

- **Keep machinery in good shape.**

Regularly scheduled maintenance on engines (tractor, truck, etc.) such as changing filters and fluids is needed for best fuel efficiency. For tractors and drawbar field work, the tractor should be properly ballasted for both total weight and percentage split between the front and rear axles. Tires should be at the correct inflation pressure for the load they carry. Over-inflation on soft soil surfaces increases slippage and wastes fuel. Check the tractor operation manual for information. Tillage, planting or application equipment should be set up properly so that the trip won't be wasted.

- **Check fertilizer applications.**

Higher natural gas prices have resulted in higher prices for nitrogen (N) fertilizer. Your fertilizer applicator should be properly maintained and set up to apply N fertilizer efficiently. See PM 1875, *Improving the uniformity of anhydrous ammonia application*, for further information. These and other bulletins can be found at: www.abe.iastate.edu/machinery.



Mark Hanna
Ag & Biosystems
Engineering

What challenges/opportunities do rising fuel costs pose for distributors and how are you addressing them?

GROWN Locally is a small, direct market farming cooperative in northeast Iowa and door-to-door delivery of products is very important to our customers. With three delivery vehicles making two to four routes per week, fuel consumption becomes a concern for us. Even though our system is the most effective use of fuel – as opposed to each customer driving to our farms or to drop-off sites – we must manage consumption.

This season, in addition to efficient route design, we will use higher levels of pre-delivery chilling of products to lessen the need for as much on-road cooling, run fuller delivery vehicles, contain chilled areas in vehicles to smaller zones and use ice to take the load off mobile chilling units. We also will try to keep the vehicles' enroute times as short as possible without compromising effective customer contacts.

Another important change is our venture into on-farm biodiesel production. Designing an effective and efficient biodiesel processor for our farm and delivery vehicles is underway and we hope to replace at least 50 percent of our petro diesel use this season with even higher percentages in the future.

At Sunflower Fields farm we installed a biomass furnace that burns dried corn kernels to heat our home, and we are investigating similar technology for a greenhouse heating system. The fuel has come almost entirely from our farm.

It's easy to become discouraged but we have the opportunity to take the lead in innovative solutions to our fuel needs such as promoting alternative heating and cooling systems and wind generation right on our farms. We might not have the resources to build that large biodiesel plant, but by working together to promote this type of research and development we not only solve our fuel supply problems but also develop more viable and sustainable markets for our products.



Michael Nash
GROWN Locally
Postville

What's in store for renewable energy in Iowa?

Iowa has roughly 700 utility-scale wind turbines and another 100 are either under construction or on order. Farmers can profit by leasing their land and wind rights to a wind farm developer if their land is in a favorable wind location, nearby utility lines and substations are adequate to transport the power to market, and they have a buyer for the power.

A lease for a 1.5-megawatt turbine pays about \$4,000 per year. Farmers who become their own wind project developers, as some have done in Minnesota, stand to make a greater return but they must be willing to make a substantial investment (about \$1.5 million for a single turbine).

Solar energy is evolving one niche at a time. While utility-scale applications to produce electricity using photovoltaic technology remain uneconomic, small applications such as photovoltaic fence-charging systems and photovoltaic pumping for remote stock-watering applications are



Floyd Barwig
Director
Iowa Energy Center

commercially available. There also are good examples of solar water heating.

I think the most exciting opportunity for renewable energy lies in the use of biomass – derived from both plants and animals – to make chemicals, fuels, plastics and composite materials. Before the advent of cheap oil in the 1930s, chemicals and materials commonly were made from plants. In 1940, Henry Ford built an experimental automobile with body panels made from a soy-based plastic. Inexpensive oil made most plant-based chemicals uneconomic and a chemical industry based on petroleum has evolved over the last half century.

As the price of oil rises, more effort will go into reinventing a biomass-derived chemical industry. Beyond ethanol and biodiesel, technologies that will allow corn stover, alternative crops like sweet sorghum or grasses and even manure to be cost-effectively converted into a wide array of chemicals and materials are close at hand. The list of possible products is long and the markets are huge, running into millions of tons per year.

With its productive soils, Iowa is poised to be at the center of a new bio-based industry.

Opportunities for agriculture

ENERGY

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advantage, and will be seriously hurt when energy supplies become limited or prices jump," she said. "Energy price increases in 2000 cost U.S. farmers approximately \$3 billion in lost income. Energy increases in the future will make a good bit of farming done now simply not economical."

So what's the solution? Lovins offered a number of ways that Iowa farmers can take a leadership role in making their operations and communities more sustainable.

On-farm income

"A typical community spends 20 percent of its gross annual income on energy and 80 percent of that leaves the community," Lovins explained. "If you're looking for ways to revitalize your community, look no further than your light switch."

Farms can provide both alternative means of power – wind, solar, biomass fuel – and become a source of on-farm income, all within the local economy. Lovins added that wind energy is growing rapidly in the Midwest "for very good economic reasons."

"Around the world, wind power is the fast growing electric supply, delivering over 5 gigawatts of new energy every year," she said. "Wind is one of the cheapest sources of new electricity – very competitive with natural gas turbines."

She noted that although Iowa leads the nation in the production of ethanol at a million gallons annually, there's still room for growth. Germany produces 750 million gallons of ethanol each year, she said.

"What's going on in Iowa with the production of ethanol and other bio-based fuels for the production of energy and other products is really exciting but we need to do it sustainably," she warned. "If not, we can easily substitute one problem for another."*

She also said that advances in photovoltaic technology make solar power one of the best choices for remote applications and agricultural settings. In the future, farms also may generate income based on their ability to sequester carbon: perennial grasses tie up 40 times more carbon on a landscape than do trees.

On-farm efficiency

Lovins said U.S. farmers reduced their energy use by 41 percent during the 1980s and 1990s, and that there are a variety of ways to further increase energy efficiency in farming operations. She noted that in California, dairy farmers can save up to 30 percent of their energy costs through variable-speed motors and vacuum pumping systems, while vegetable farmers can save 25 percent of their water pumping, fertilizer and herbicide costs with subsurface drip irrigation technologies. In livestock housing, the use of compact fluorescent instead of incandescent light bulbs, and big, slow fans instead of small, fast ones improves energy efficiency and may keep animals more comfortable, thus improving production. The same benefit applies to weather stripping, better insulation and orientation of

ON THE WEB: www.leopold.iastate.edu/news/pastevents/lovins/lovins.htm; for a copy of L. Hunter Lovins presentation.

Or contact the Henry A. Wallace Endowed Chair for Sustainable Agriculture for a printed copy, (515) 294-6161, wallacechair@iastate.edu.



Hunter Lovins (seated in front) listens to comments at the town meeting in Centerville. She had receptive audiences throughout her two-day visit.

farm building to take advantage of solar heat or shade.

Lovins said her favorite example is a 2,500-acre farm in Gettysburg, Pennsylvania that produces both milk and energy. The farm's 2,200 cows produce 80,000 quarts of milk daily and a biodigester, installed in 1978, turns the cows' manure into electricity that is sold to a local utility.

"The bottom line is that sustainability pays," she said. "The principles of natural capitalism are the basis of how you do business in this new century – profitable farms, sustainable agriculture and renewable energy."

* News reports since this presentation show that ethanol prices have dropped due to an over-supply.

Pesek Colloquium on Sustainable Agriculture

Now in its fifth year, the colloquium honors Iowa State University agronomy professor emeritus John Pesek. In the 1980s, he chaired a National Research Council committee that produced the groundbreaking report *Alternative Agriculture*. The Leopold Center has supported the event, coordinated by the Henry A. Wallace Endowed Chair for Sustainable Agriculture at Iowa State University.

Fuel price impacts on farmers

Associate director Mike Duffy discussed the farmer impacts of high energy costs in 2001, the last time that fuel prices skyrocketed. See the Spring 2001 *Leopold Letter*, "[Prices on the rise.](#)"

Duffy also has examined the impact of the current round of price increases. The estimated costs of crop production have already shown 21 and 50 percent increases for gas and diesel fuel, respectively, from 2004 to 2005. One scenario that assumes an additional 25 percent increase in fuel costs would raise variable costs for corn production by 10 percent and total costs by 5-6 percent, and variable costs for soybean production by 6 percent and total costs by 2 percent. Using a scenario in which fuel prices go up 50 percent, variable costs of production for corn and soybeans would rise 18 and 10 percent, respectively, and fixed costs would rise 10 and 4 percent, respectively. For more information on this topic, see "Rising Energy Prices and Iowa Farmers" on the Leopold Center web site, www.leopold.iastate.edu/pubs/staff/files/energy_impact_0405.pdf.

Midwest organic farmers see benefits from “coop”-perating

NOTE: This article reports on preliminary research done for a project supported by the Leopold Center’s Policy Initiative.

By **Richard A. Levins, University of Minnesota Extension Economist (retired)**



Richard Levins

The premium prices attached to organic crops make them an attractive production alternative for Midwest producers. New research funded by the Leopold Center suggests that organic farmers can further increase their profits by banding together in cooperatives to market their specialty products.

Farmers marketing organic grains through OFARM, an organized group of organic cooperatives, during 2002 and 2003 appear to have received higher prices, often by substantial margins, for all crops analyzed except oats. This suggests that collective marketing by OFARM cooperatives has positive economic advantages for member farmers.

A cooperative for organic producers

Farmers join cooperatives for two reasons. So-called “brick and mortar” cooperatives allow farmers to further process their products and therefore add value. Their alter ego “bargaining cooperatives” allow farmers to act collectively in pricing products at the farm gate. In the upper Midwest, several smaller bargaining cooperatives have sprung up to market organic grains on behalf of member farmers. The cooperatives have in turn

networked through a “marketing agreement in common” to form the Organic Farmers Agency for Relationship Marketing, or OFARM.

OFARM is a legal structure that allows individual cooperatives to act in concert as they price and market products. Because of this, the market power of each individual cooperative is enhanced because buyers are prevented from playing the marketer for one cooperative against that for another.

OFARM’s publicity often claims that “by marketing together, we are making a difference.” A comparison of prices received by member and non-member farmers indicates that this is indeed the case – OFARM is negotiating higher prices than farmers are able to get when acting alone.

How prices were compared

The analysis for this project required two datasets: OFARM prices received and prices received by non-OFARM farmers, as well as a method of comparing the two sets of prices fairly. Organic grains, unlike their conventional counterparts, do not have established futures markets or long histories of U.S. Department of Agriculture data that have come to be accepted in economic analysis. Furthermore, OFARM occasionally lists “target prices,” that is, prices it deems fair for organic farm products. These target prices are sometimes taken to be prices received, but that is not always the case.

“Organic” and “Conventional” *Grain and Soybean Prices in the Northern Great Plains and Upper Midwest: 1995 through 2003* by Streff and Dobbs was selected as the baseline data source for comparison. Streff and Dobbs ana-

lyzed sources of prices for organic corn, soybeans, wheat and oats and chose a method for estimating annual average prices for each year in their study.

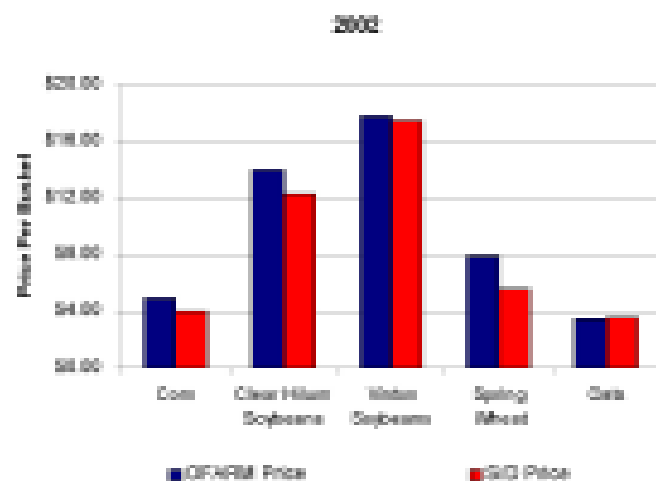
How prices stacked up

For the 2002 crop year, the OFARM price was higher than that reported by Streff and Dobbs for corn, clear hilum soybeans, Vinton soybeans and spring wheat. The 2002 OFARM oat price was approximately the same as that reported by Streff and Dobbs. The highest premium gained by OFARM was 42 percent for spring wheat [see table below].

For the 2003 crop year, the OFARM price was again higher for corn, clear hilum soybeans, Vinton soybeans and spring wheat. The price reported for oats, however, was lower for OFARM participants than that reported by Streff and Dobbs. OFARM price premiums of 24 percent for Vinton soybeans and 22 percent for spring wheat were reported.

When asked about oats, OFARM marketers said that oats were grown by member farmers mostly for satisfying crop rotations and were not of sufficient quality to be marketed aggressively. Nonetheless, the high price reported for non-member oat sales in 2003 is puzzling. Streff and Dobbs report that another price series for organic oats indicated a price of \$3.50 per bushel reported for food grade oats. That number, if accurate, is in line with OFARM performance in 2002 and 2003.

Nonetheless, the general finding of more cooperation leading to higher prices is worth noting by all organic farmers as they contemplate individual versus collective marketing strategies.



How prices were calculated for the survey

OFARM prices were obtained from six cooperatives: Kansas Organic Producers Association, Midwest Organic Farmers’ Cooperative, Great Lakes Organic, NFOrganics, Organic Farmers of Michigan and Organic Bean and Grain Marketing. Prices were sought for 2002 and 2003 for crops that could be specifically compared to the data collected by Streff and Dobbs: corn, clear hilum soybeans, Vinton soybeans, spring wheat and oats.

The lowest and highest individual sale (that is, the price range) were collected for each of the six cooperatives reporting sales of each grain in each year. To remain consistent with the method used by Streff and Dobbs, the mid-point of the lowest price reported by any of the cooperatives and the highest price reported by any of the cooperatives for each of the crops in each of the years was taken as the annual price. Also for consistency, the OFARM prices collected were gross prices received, that is, marketing commissions paid to OFARM and individual cooperatives were not deducted from the prices used here.

Survey gives snapshot of healthy CSAs in Midwest

In 1986, the first two Community Supported Agriculture (CSA) projects began delivering harvest 'shares' from farms to homes in Massachusetts and New Hampshire, with similar enterprises launched in Iowa during the mid-1990s.

It didn't take long for the idea to catch on. Viewed as a way to get farm-fresh produce and build urban-rural partnerships, CSAs now total more than 1,000 nationwide, including 60 in Iowa.

How are these businesses faring?

The Leopold Center recently analyzed data collected from a 2002 survey of 144 CSAs in nine Midwest states. The new report paints a picture of viability and commitment among CSA operators.

The report is entitled, "Community Supported Agriculture in the Midwest United States: A regional characterization." It was written by Leopold Center associate director Mike Duffy, who also leads the Center's Policy Initiative, and Erin Tegtmeier, director of the Experiment in Rural Cooperation located at Kasson, Minnesota.

"Although more than half of the respondents do not feel their share prices provide them with a fair wage, almost all claim to be satisfied at least most of the time with their operations," the report states. "Nearly half of these farmers anticipate continuing their CSA operations and over half expect the operations to expand."

Duffy and Tegtmeier suspect that the intangibles of environmental stewardship and community involvement continue to sustain the outlook of these farmers, however, the average financial return also may make CSAs attractive.

The average net return per acre for the CSA farmers surveyed was \$2,467, which is high compared to return per acre of corn (\$172.11), soybeans (\$134.46) and wheat (\$38.10) in the United States. But this does not consider differences in labor requirements, or the opportunity costs of land and labor. CSA income as a percentage of total farm income is nearly 50 percent, even though CSA land as a percentage of total land farmed averages only 37 percent.

The survey also showed that CSA farmers were involved in a variety of agricultural enterprises. Only 18 percent report the CSA as their only farming operation; 73 percent have market gardens, 31 percent raise livestock, and only 10 percent raise a grain crop. As a group, CSA farmers are more educated and

younger than farmers nationally. Many respondents said their CSA operations were beginning their sixth season at the time of the survey and had grown in membership and land area since inception.

Almost all of the respondents (98 percent) reported that they farm organically for the CSA operation, and most of these (92 percent) have used organic methods since start-up.

On average, the CSA farms in the survey provide 30 types of vegetables, three fruit products and eight types of herbs. Most (81 percent) also offer flowers or value-added items. Animal products are offered by just over one-third of the farms: 38 percent provide eggs or dairy products and 35 percent offer meat products. Processed products, such as honey, syrup and jams are provided by 35 percent, and 29 percent include grains

or beans. Most CSAs in the survey use drop sites or have on-farm pick up and over a third provide home delivery.

Some CSA farms offer members the option to work on the farm in exchange for some of the share price; 53 percent of the respondents offer working shares. However, this labor source does not seem to meet labor needs to any great extent. For 70 percent of those responding to the question, members provide 5 percent or less of their labor needs. Most respondents (79 percent) indicated that family members participate in CSA work.

ON THE WEB: www.leopold.iastate.edu/pubs/staff/files/csa_0105.pdf

Or request a copy from the Leopold Center by calling (515) 294-3711.

At a glance: CSA survey in nine Midwest states

Definition: Sometimes known as "subscription farming," Community Supported Agriculture is an arrangement in which farmers contract directly with customers (called "members" or "shareholders") who agree to buy a minimum amount of produce and/or other foods at a fixed price throughout the growing season.

Method: Surveys were mailed to 144 CSA farmers in Iowa, Illinois, Kansas, Michigan, Minnesota, Missouri, North Dakota, Nebraska and Wisconsin. The March 2002 mailing yielded 62 responses, of which 55 (38 percent) were usable.

Results:

- The typical CSA farmer is 45 years old with 14 years of farming experience.
- Just over half of the farmers are female and have farmed for about eight years.
- CSA farms have been in operation for more than five years, on average.
- An average CSA has 33 members, and membership had increased 350 percent since startup.
- The average CSA farmer has just over 30 acres, including the CSA operation.
- Almost two-thirds of the farms raise only produce, as a CSA or a CSA/market garden combination.
- When determining share price, most CSA farmers consider what they believe to be consumers' willingness to pay rather than the market price for their products.
- Half of the farmers have an off-farm job, but also farm 20 to 98 percent of the time.
- Two-thirds of the farmers hire other labor (in addition to family members).



In this file photo, Reuben Zacharakis-Jutz displays a weekly food box from the Local Harvest CSA, operated by his mother Susan Jutz, and Simone Delaty of Solon.

Leopold Center issues 'timely' 2003-2004 annual report

"Facing Time" showcases time well-spent in FY 2004 at the Leopold Center. The Center's new annual report highlights Center activities, public events, outreach efforts and research programs that occurred from July 2003 to July 2004.

Reflecting the Center's shift from a broad-based competitive grants program to a more focused, triumvirate approach, there are expanded sections on the efforts of the initiatives in marketing and food systems, policy, and ecology. Whether it was eco-labels, farming transitions, or Green Lands Blue Waters, the Center's initiative leaders were involved and active in furthering sustainable agriculture principles.

In addition to the unique research and outreach projects managed by the three initiatives, the annual report covers

Finding Iowa's food stories

What's the story behind authentic tortillas from Muscatine and Italian sausage from Des Moines? Or how about the sweet corn variety your grandfather grew for years, or the family kolache recipe?

Folklorist Riki Saltzman wants to learn about Iowa's food stories as part of a research project funded by the Center's Marketing and Food Systems Initiative. Saltzman, who is folklife coordinator for the Iowa Arts Council, will be documenting five to 10 place-based foods in Iowa that have both geographic and cultural connections.

"Outside of Maytag blue cheese and Amana meats, which are known beyond the state, there are few examples of foods marketed for their value to tourism," Saltzman said. "Many states and countries are known for particular wines, cheeses or other foods and have tourist-destination 'food heritage areas' that attract economic development dollars from government and businesses."

She is looking for stories about food products or crops that meet at least two of these criteria:

- Ingredients must be grown and processed in Iowa.
- The food product or crop must have some heritage basis — historical, ethnic, ecological or geographic.
- The food must have some kind of "story" related to it, making its Iowa connection clear.

If you have food stories to share, contact Saltzman at (515) 242-6195, riki.saltzman@iowa.gov.



special projects and the work still being conducted for the Center's earlier broader-based grants program. Two Center staff members are cited for the awards they received from the ISU Col-

lege of Agriculture for their outstanding performance.

The Center also sponsored a large amount of work related to organic agriculture in Iowa that was conducted with ISU. The ongoing partnership with Practical Farmers of Iowa to conduct on-farm demonstrations related to sustainable agriculture continued as well. Both are featured extensively in the annual report.

The Leopold Center's 40-page annual report was compiled and edited by Mary Adams, with graphic design provided by the award-winning firm, Juls Design of Ankeny, Iowa.

ON THE WEB: www.leopold.iastate.edu/pubs/annual/files/Leopold_AR_03-04.pdf.

Or request a copy from the Leopold Center, (515) 294-3711.

NEWS & NOTES

New generation cooperatives Peter Goldsmith, agricultural and consumer economist, University of Illinois-Urbana/Champaign, presented seminars in February for the Leopold Center, the ISU Graduate Program in Sustainable Agriculture and the Value Chain Partnerships for a Sustainable Agriculture (VCPSA) program. He specializes in researching ways that producers can work together to sell to buyers in large markets. His presentation is on the VCPSA web site: www.valuechains.org.

Grapes and wine Growing grapes and making wine are among the oldest and most romantic agricultural industries but success requires persistence, passion and money. To help producers interested in Iowa's growing wine industry, the Agricultural Marketing Resource Center (AgMRC) and the Iowa State University Value-added Agriculture Program (VAAP) developed a three-part video series, "The Total Wine Package." The videos explore the opportunities within the wine industry, the science of viticulture and how to develop a marketing strategy. Partially funded by a grant from the Leopold Center Marketing and Food Systems Initiative, the videos are on-line at www.agmrc.org/agmrc/commodity/fruits/wine/winevideo.htm. They also can be ordered on DVD from Craig Tordsen, (515) 294-1938, or ctordsen@iastate.edu.

On-farm food safety Three new publications outline on-farm food safety practices and how to document them, information about cleaners and sanitizers, and tips for seasonal and part-time employees who handle the produce. The fact sheets were developed by Iowa State University Extension with a grant from the Leopold Center's Marketing and Food Systems Initiative. The project included a 2003 pilot program to develop training materials and the "On-Farm Food Safety" series: *Guide to Good Agricultural Practices (GAPS)*, PM 1974a; *Guide to Food Handling*, PM 1974b; and *Guide to Cleaning and Sanitizing*, PM 1974c. Copies are available at any ISU Extension office, or on the web at: www.extension.iastate.edu/pubs/.

Organic standards The two-year-old National Organic Program (NOP) has helped Iowa organic producers by standardizing organic regulations, possibly making it easier to find organic grains for livestock and for new farmers to enter organic production. A grant from the Leopold Center Policy Initiative funded a survey of Iowa's 400 certified organic farmers. When asked about their biggest challenges, 37 percent indicated "finding a market which will pay value-added costs of organic products" and 31.5 percent indicated "growing enough product to meet demand for organic products."

How far do your yogurt ingredients travel?

A new Leopold Center report shows that the primary ingredients for an 8-ounce container of strawberry yogurt travel more than 2,200 miles before reaching the supermarket shelf.

Rich Pirog, program leader for the center's Marketing and Food Systems Initiative, and ISU student Andrew Benjamin calculated the weighted total source distance (WTSD) for the milk, sugar and strawberries used in a typical container of strawberry yogurt processed in Des Moines and shipped to nearby food retailers. They found that the average distance (based on percent weight in the final product) the ingredients travel is about 277 miles, with a total travel distance of

2,216 miles.

For the study, Pirog and Benjamin sourced the milk from northeast Iowa, the strawberries from California and Florida, and the sugar from beets grown primarily in the Red River Valley of Minnesota and North Dakota. They did not factor in the origins of the plastic yogurt cup and lid, foil cover, cardboard case, or the active cultures and natural and artificial flavors.

Previous Leopold Center projects have looked at "food miles" for fresh fruit and vegetables. On average, they travel more than 1,500 miles before they get to Iowa supermarkets. The current study is one of the first to look at food miles



for products with several ingredients.

In the report, "Calculating food miles for a multiple ingredient food product," Pirog and Benjamin outline their assumptions – and provide recommendations so that food professionals can compute food miles for their own regions.

ON THE WEB: www.leopold.iastate.edu/pubs/staff/files/foodmiles_030305.pdf.

Or request a copy from the Leopold Center, (515) 294-3711.

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Please check the appropriate boxes on the back of this postage-paid card and drop it in the mail or fax it back to us at: (515) 294-9696. (International readers: please affix correct postage.)

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Although we have posted the Leopold Center's newsletter on the web for years, we are starting a new e-mail service for readers. If you sign up, you will receive an e-mail message four times a year that lists articles from the current issue. The message also will have a link to the Leopold Center web site where you can read the entire story (and find additional information).

Letter

HIGHLIGHT EVENTS

Agricultural policy summit July 6-8

Plans are underway for an agricultural policy summit this summer in Ames. The current federal farm program legislation, adopted in 2002, will expire in 2007. The conference, which will be at ISU's Scheman Building, is titled "New Directions in Federal Farm Policy: Issues for the 2007 Farm Bill."

Leopold Center associate director Mike Duffy, who also leads the Center's Policy Initiative, is a member of the planning committee, headed by Paul Lasley, chair of the ISU Department of Sociology.

Target audiences for event will be Iowa farmers, state and national farm policy leaders, Iowa's congressional delegation and leaders from Iowa's farm and commodity organizations and rural groups. The summit is designed to gather input on what lowans believe should be included in the next farm bill.

Goals of the summit are to:

- review the past 20 years of evidence from the scientific community on the costs and benefits of federal agricultural policy,
- assess the health and status of Iowa's agriculture,
- solicit input from agriculture leaders and producers on directions for the 2007 Farm Bill, and
- initiate a national discussion on farm legislation.



New generation cooperatives

Cooperatives that had their heyday in the early 20th century are outmoded in today's marketplace, which has global supplies, lots of competition and fragmented demand... Rather than being a seller's agent that works for the farmer, new coops need to be a buyer's agent who responds to the needs of the buyers. — Peter Goldsmith (see page 10)



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FOR SUSTAINABLE AGRICULTURE
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