

Letter

An open letter to Iowa's citizens: Dear friends ...

On May 28th, 2002, the Iowa Legislature decided that the work of the Leopold Center for Sustainable Agriculture was no longer a priority for Iowa and transferred \$1 million out of the Groundwater Protection Fund that makes our research possible.

Ironically, that fund is derived from taxes imposed on farmers by the legislature to conduct research that enables farmers to "identify and reduce negative environmental impacts of agriculture practices" and to develop "emerging alternatives." Without the funds to continue this vital research, the Leopold Center faces a highly uncertain future.

As a North Dakota farmer, I am acquainted with adversity, and I know that sometimes it can bring out the best in all of us. Having made the decision

This letter from Leopold Center director Fred Kirschenmann was sent to all Iowa newspapers, radio and television stations on June 5.

to leave my farm to become part of the challenge to develop a new agriculture in Iowa, I have no intention of giving up without a fight. Tempting though it may be to return to my farm, the Leopold Center's work is too important to abandon, despite the verdict of the current legislature.

Last year's \$250,000 cut in the Center's budget was a warning that the Groundwater Protection Fund was vulnerable. Accordingly, we have made every effort to protect ongoing research so that we would not lose the value of work in progress. We believe that we will succeed in that effort. But we have no guarantees for the future.

On a more personal note, it has been a little over two years since I was asked by the search committee to apply for the position of Director of the Leopold Center. The committee wanted at least one qualified farmer in the pool of excellent candidates. At first I thought they just wanted a token

OPEN LETTER (continued on page 5)

A look at conservation in the 2002 Farm Bill: Policy in conflict

By Brad Redlin
Center for Rural Affairs

Much has been made of the expected 80 percent increase in conservation spending allocated in the 2002 Farm Bill (now Public Law 107-171). Although some controversy has surfaced as to whether the statement is an impressive fact, or merely a clever spin (as a percentage of overall spending, this bill's conservation spending is actually lower than that of previous bills). Debate over the legislation's orientation might

best be placed in the "what's-done-is-done" category as we move on to assess the details.

Specifically, the numbers for the Farm Security and Rural Investment Act of 2002, Title II, end up as a \$9 billion increase over current program spending for a total of \$17.1 billion from the 10-year allocation of federal funding for agriculture. It is also noteworthy that conservation spending since 1985 has so heavily shifted to land retirement that just 7 percent of current total costs are for working lands. The shift in costs over

the six-year life of the new bill is projected to raise that total to 40 percent.

Increases do, in fact, abound in the new conservation title, but just two programs have the greatest potential to impact U.S. agriculture in dramatic terms. The new Conservation Security Program (CSP) and the radically transformed Environmental Quality Incentives Program (EQIP) could invite lasting change to farm country, but they are anything but complementary.

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NEWS & NOTES

Two Iowa State University students associated with the Leopold Center have been invited to present their ideas on sustainability at the World Summit on Sustainable Development in Johannesburg in August. The students are **Erin Tegtmeier**, a graduate student in sustainable agriculture from Chicago and a Leopold Fellow; and **Matt Miller**, a senior student in English from Ames who has provided secretarial support at the Leopold Center. Both were members of winning teams in an Iowa United Nations Association competition in which students submitted their plans to create a more sustainable Iowa. Tegtmeier's presentation focused on agricultural education opportunities. Miller's project related to sustainable energy systems for Iowa communities. The summit, which takes place from Aug. 24 to Sept. 4 in South Africa, is a follow-up to the 1992 Earth Summit in Rio de Janeiro.

Leopold Center associate director **Mike Duffy** joined other university agricultural economists and public policy officials in Kansas City in May to discuss provisions of the new farm bill, and begin the process of educating others. The Farm Bill Education Conference was sponsored by the Oak Brook, Ill.-based Farm Foundation. Kansas State University has posted a series of articles arising from the discussions on the web at: <www.oznet.ksu.edu/news/sty/2002/June02FarmBill.htm>. Duffy heads the Center's new policy initiative and presented information about the conservation title in the farm bill. The U.S. Department of Agriculture also has set up a web site with program information, tools and forms at: <www.usda.gov/farmbill>.

The Leopold Center's 2000-2001 annual report has won an award in an international educational resources competition. The report, which focused on new directions for the Leopold Center, received a silver (second-place) award in the one- to three-color print category in the 2002 Critique and Awards program of the Agricultural Communicators in Education (ACE). The report was written by Center editor **Mary Adams** and designed by Juls Design,

Ankeny. The honor will be awarded during the organization's annual conference in August in Savannah, Georgia. Also at the ACE conference, Center communications specialist **Laura Miller** will receive a top writing award for a series of youth farm safety publications she helped develop for Iowa State University.

Two projects that received seed money from the Leopold Center to begin their work have been named national "flagship" programs. A swine carcass composting demonstration and a program to train Iowa citizens as "master conservationists" have been named top programs of the National Resources and Environmental Management (NREM) division of the Cooperative Extension Service. More than 50 programs from 22 states were submitted for the honor, and five from Iowa were selected to be part of a national database of model programs. ISU

agricultural and biosystems engineering professor **Tom Glanville** directed the composting demonstration with **Jay Harmon** and **Tom Richard**. ISU animal ecologist **Jim Pease** developed the master conservationist program.

Two new publications highlight Leopold Center food systems projects and work in the new marketing initiative. Practical Farmers of Iowa (PFI) has produced a brochure, *Expanding Local Food Systems by Marketing to Iowa Institutions*, available on the web at: <www.pfi.iastate.edu> (PDF only; go to Food Systems/Institutional buying of local foods). Iowa State University Extension is producing a second fact sheet in a series about local markets for Iowa products. The fact sheet, *Local Food Connections: From Farms to Restaurants*, (PM 1853b), will be available in July from the ISU Extension Distribution Center, or on the web at <www.extension.iastate.edu/pubs> (look under Farm Marketing).



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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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U.S. Vietnam Era Veteran. Any persons having inquiries concerning this may contact the Director of Affirmative Action, 318 Bearshear Hall, (515) 294-7612.

Farming: ‘... an industry like any other’ ?

I would argue that the nature of modern economics has been substantially impoverished by the distance that has grown between economics and ethics. — Economist Amartya Sen

At our third and final “urban conversation” April 15 in West Des Moines, a farmer in the audience declared that farming is “an industry like any other.” He went on to say that farming was not a lifestyle, implying that farmers had no social responsibility other than to produce as much food as cheaply as possible.

It is increasingly common to hear farmers make such statements. And it’s easy to understand why they have come to this conclusion. For at least the past half century, we have been telling farmers that all we want them to do is to produce as much food and fiber as possible, as cheaply as possible. We have told them they must specialize and streamline their operations and at the same time we have invented the technologies to do so. Then we told them they had better “get big or get out.”

Is efficiency enough?

In other words, our culture has told farmers to become part of our larger Industrial Age effort that consolidates industrial activities to achieve efficiency and produce goods and services as cheaply as possible without paying any of the external costs.

So how can we object when a farmer claims that his farm is an industry like any other?

How can we complain when industrialized farms pursue this objective even when they cause environmental or social damage?

If other industries profess that they cannot compete in a global economy when environmental regulations are too strict, or they are required to provide workers with health insurance, then how can we protest if our farms cause environmental degradation or tear at the social fabric of our communities?

We must question at least two assumptions

behind this industrial mindset that apply to both farms and factories.

Farms are not factories

First, farms and factories are not equivalent from a biological perspective. While both are subsystems of the ecosystems in which they operate, farms are biological organisms. Factories are not. Farms are an intimate part of the interdependent biotic community in which the farm exists. Factories are not. The health of a farm depends on the health of the ecosystem in ways that factories do not. When soil quality deteriorates or pollinators disappear, a farm’s productivity is immediately affected. A factory’s is not. A farm is not an industry, but may be more accurately described as a **habitat**, as suggested by Laura and Dana Jackson in their new book, *The Farm as Natural Habitat*.

Yet, since the early 1950s we have largely managed farms and factories as if they were identical enterprises. We used external inputs to fuel both systems, capitalizing on the availability of cheap fossil fuels. On our farms we substituted fossil fuel inputs for the many biological functions integral to the biology of a farm. Fertilizer replaced soil nutrients that naturally

accumulate on well-managed farms as a result of biological functions. Pesticides replaced natural pest-suppressing functions such as balanced predator/prey relationships and sound habitat management.

As supplies of fossil fuels are depleted, we may need to rethink both farming and factory systems. Masae Shyomi and Hiroshi Koizumi point out in their recent study, *Structure and Function of Agroecosystem Design and Management* (2001), that fossil fuel-based systems of farming are rapidly coming to an end and must be replaced. They argue that the most probable alternative is a system based on “proper interactions operating between crops/livestock and other organisms,” in other words, perceiving a farm like a habitat.

Diversity, knowledge decline

Having used industrial, fossil fuel-based methods almost exclusively for more than 50 years, however, we have dramatically reduced the diversity of species as well as the knowledge about their interaction and interdependence. Shyomi and Koizumi predict that redesigning farms as healthy, functioning habitats will, consequently, be a challenge.

Factories can no longer be managed as industries in the conventional sense,

either. Factories also push the limits imposed by the depletion of fossil fuels and by the environmental damage stemming from that system. Recognizing this, the Ford Motor Company recently invested \$2 billion to install a “living roof” on its factories, planting it with sedum plants and installing wetlands. This has turned the roof into a “ten-acre garden” expected to lower energy costs, reduce the need for artificial light, and filter water for reuse in the factory. The Ford Motor



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DIRECTOR

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Here's how the budget ax has fallen at the Center

The Leopold Center has two lines of funding. The primary source is the Agricultural Management Account (AMA) of the Groundwater Protection Fund created by the 1987 Iowa Groundwater Protection Act. The legislation set a fee on sales of nitrogen fertilizer and pesticides to support nearly 20 environmental programs, which includes the Leopold Center. The Leopold Center's average annual revenue from the AMA fund, based on the last five years, is about \$1.2 million.

The Leopold Center's second source of funds is a line item appropriation from the legislature's educational funding, or General Purpose Revenue (GPR). The Leopold Center's average annual GPR income, based on the last five years, is about \$569,000.

The Leopold Center has maintained a

financial reserve that allows us to honor FY 2003 commitments for research already approved and in progress. This allows researchers time to finish the projects or find other support for their work.

Since 1988, the Leopold Center has issued a Request for Proposals (RFPs) for new projects every year. No new RFPs will be

issued until further notice. The Center also has eliminated funding for its educational event grant program and pilot educational programs, and will not hold any statewide conferences.

Grants from outside groups may be in jeopardy due to the Leopold Center's uncertain future and inability to assure adequate matching funds.

Leopold Center Budget Cuts

	FY 2002*	FY 2003**	TOTALS
AMA	\$250,000	\$1,000,000	\$1,250,000
GPR	\$35,700	\$56,300	\$92,000

* FY 2002 runs July 1, 2001 through June 30, 2002.

**FY 2003 runs July 1, 2002 through June 30, 2003.

NOTE: The \$1 million cut from the Leopold Center's AMA account was approved during the May 28, 2002, special session. The money will be transferred to the state's General Fund. All figures are current as of presstime.

Economic efficiency tied to economic power, economic freedom

DIRECTOR

(continued from page 3)

Company seems to be saying that we need to begin running our industries like any other farm!

Beyond economic efficiency

A second assumption—deeply rooted in both our farm and factory operations but seldom acknowledged—is the economic philosophy by which our contemporary industries function. We have assumed that the only principle to guide us is “economic efficiency.” Nobel Prize-winning economist Amartya Sen calls this the “engineering-based” approach to economics. That approach, he points out, is primarily concerned with the “logistic and engineering problems **within** economics,” which ignores the wealth or well-being of society except to **predict** that such well-being will somehow automatically be served. He also points out that such predictions are based more on theory than on empirical verification. Observation tells us that increasing economic efficiency has done little to increase a farmer's wealth and well-being.

It is interesting to note that many of the classical economists did not see economic efficiency as the **only** means to generate wealth. Classical economists such as Adam Smith insisted that economic **freedom** and economic **power** were as important as economic **efficiency**. Smith was concerned that both the disproportionate economic power of the mercantilists (a powerful group of highly

consolidated merchants who obtained favorable government rulings) and the absence of economic freedom for entrepreneurs prevented Scottish society from achieving true economic efficiency. Smith's analysis suggests that neither farm nor factory can serve society well unless democratic economic rules exist to create the framework for a free society.

More than 200 years later, Sen argues that this is why ethics are essential in economics. Economics without ethics, he suggests, makes for poor economics, and ethics without economics makes for impotent ethics. The fact that Adam Smith was a moral philosopher seems to be lost on neo-liberal economists.

Recognizing that farms are biological organisms not factories, and that economic efficiency does not, by itself, lead to social (or fiscal) prosperity, are two issues that need our attention. Farmers—and the rest of society—should not naively assume that their farms must be operated like factories of the industrial era, especially when factories seem on the verge of recognizing that they may need to be redesigned to operate more like the biological farms of the future.

Much of the current consolidation, which reduces farmers to “serfs on their own land” (as *Time* magazine in 1992 described poultry producers who raised chickens for Tyson), has little to do with free market competition or efficiency. As

ISU economist Neil Harl recently put it, “It's about power, exploitation of market power.” He goes on to add that as firms become more concentrated “they no longer pass along the benefits to the consumer.” It seems that neither the well-being of farmers nor consumers is well served by our obsession with economic efficiency.

Rethinking the assumptions

Simply declaring that consolidation of power and the loss of economic freedom are inevitable due to free-market forces, as neo-liberal economists often do, is dishonest. It is arrogant to assert that economic efficiency alone matters in a free market economy, especially when public policies are then developed to support this false assumption.

We must begin with the proposition, as the classical economists did, that we not only need economic efficiency, but also an ethic that establishes a high degree of economic freedom and an appropriate balance of economic power among all players in the marketplace. We could then develop consistent public policies designed to produce outcomes that serve the general well-being of society—including farmers.

These are issues that farmers, and the rest of society, need to ponder before they glibly accept the notion that a farm is “an industry like any other.”

We have worked hard to develop a new vision for Iowa agriculture

OPEN LETTER

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farmer so I agreed to submit my application, never thinking that I would have to face the tough decision between starting yet another new career or remaining on my farm. When I was selected as one of the six finalists, I knew I had to start taking that possibility seriously.

I came to Iowa for the interview—still not convinced that I would have to choose between my farm and this new possibility for my life. Then I met group after group of incredible people at Iowa State. I was especially struck by the number of scientists (mostly young) who were passionately dedicated to a different future for agriculture.

They were committed to doing research that would make farming more profitable for family farmers, less damaging to the environment, and more conducive to building strong rural communities. These were the same values I held—values that I had been struggling to implement on my own farm in North Dakota.

It was at that point that I became a serious candidate for the position. I knew I didn't want to pass up the opportunity to work with a group of stellar colleagues who shared the same goals to which I was committed.

Since becoming Leopold Center director nearly two years ago, I have traveled all over the state and spoken with hundreds of Iowans—farmers, urban and suburban dwellers, senior citizens and students. We held community “conversations” throughout Iowa and listened to a cross-section of Iowans share their views of the future and failures of Iowa's agriculture. The staff at the Center listened and worked very hard with the people of Iowa to develop a new vision for Iowa agriculture, an agriculture that would enable farmers to produce more value and retain that value on the farm while simultaneously restoring the natural resources on which all agriculture depends. The philosophy of the Center's namesake—Aldo Leopold—served as the guiding light for our vision.

We will now put all of our energy into finding alternative support and additional outside funding so that the vital

work of this internationally recognized center can continue. We already have received suggestions and offers of support from friends all around the country for which we are enormously grateful. But we will need your help, too.

First, let your voices be heard. Take the time to share your views about food, family farms, and Iowa's natural resources with the elected representatives in your district. Second, become informed about the food you buy. Ask for food that was produced by Iowa farmers who use sound land stewardship practices. Food retailers pay close attention to what their customers want. If just 15 people ask the manager of a supermarket

for the same food items during the same week, there is a good likelihood that the retail outlet will make an effort to make it available. Of course, we welcome your suggestions about other ways you can help.

We have realized from the beginning that we could not implement a new future for Iowa's agriculture by ourselves. At best we can be a catalyst to help make it happen. The new vision will only become a reality as Iowans become involved. In the months ahead we will fight for the opportunity to implement this new vision, limiting the amount of time we can devote to the programs that can move it forward. But we are determined to stay the course.

The alternative pork program that we launched last September is moving forward and has already assumed momentum of its own. While the \$660,000 foundation grant we helped secure to provide support to farmers producing for new markets is now on hold due to our budget cuts, the foundation has pledged to continue working with us. We will do everything possible to secure the Leopold Center's future so the full grant can be restored.

In the days ahead, we will be guided by the wisdom of those who have preceded us. In recent days I have found the words of Harold Morowitz especially helpful: “Conformity is not necessarily a virtue, hard work is almost never a vice, optimism is a moral imperative and a sense of humor helps.” I can only add, “Don't ever give up.”

We have realized from the beginning that we could not implement a new future for Iowa's agriculture by ourselves. At best we can be a catalyst to help make it happen.

--Frederick Kirschenmann

“You have been in my thoughts constantly the last couple of weeks as my heart aches for you personally and for the lack of vision on the part of others in our state and in our world.”

“I don't know what [we] would have done for funding of our work without the Leopold Center. As you know, with the research priorities of most funding agencies, it is hard to find a place to fund the type of applied research ... I know this represents just a narrow slice of the activities that the Leopold Center has fostered and supported but it has been important for us.”

“Sustainable agriculture is crucial to the lives of future generations. If the planet doesn't survive, we don't either. Iowa gave us the green revolution with its support of Norman Borlaug's efforts. Iowa is where sustainable agriculture should be nurtured now.”

— These are some of the many comments the Leopold Center has received since the Center's primary source of funding was cut May 28. A new summary of Leopold Center projects and accomplishments has been posted on the center's web site, <www.leopold.iastate.edu>, or can be requested by calling the Leopold Center at (515) 294-3711.



*From the earth we come, to the earth we return,
and while on earth we live by her fruits.*

– Soil scientist Hans Jenny (1954)

Soils are our future: Taking another approach using nature as a guide

By Jerry Glover
The Land Institute

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As our cultural identities become increasingly subsumed into technological identities focusing on what we can, or hope, to become, we have largely ceased considering the wellspring of our physical and chemical makeup. That wellspring — the Earth's soil — is a relatively thin and fragile but biologically active layer of the Earth's surface through which nearly all of the elements necessary for our bodily past, present and future must cycle. Soil is the elemental recycling center that provides our human DNA with a past and present. Without soil, human DNA has no future.

For those of us who inhabit the North American Great Plains and Midwest, the future depends on soils developed in prairie ecosystems that covered a large portion of the continent little more than a century ago. These prairie soils, some of the most inherently fertile soils in the world, are the product of near-miraculous management of nutrients, water and sunlight over long stretches of time.

Much of the effectiveness of the prairie system derives from its vegetative structure that consists primarily of mixtures of warm and cool season grasses, legumes and members of the sunflower family. These diverse, perennial plant assemblages evolved over tens of millennia, under the pressure of constant resource constraints, to capture and hold onto anything the system offered that could be used to fix carbon from the atmosphere, set seed and expand roots into the soil. The triumphant assemblages are those systems that waste little, produce much and save for the future.

Presence of plants

One key to the prairie's conservatism is the constant, living presence of plants. During the growing season the perennial cover of prairie vegetation shelters the soil from the erosive effects of wind and water while the thick layer of dead and decaying plant litter protects the soil during times of plant dormancy. Rainfall readily enters the undisturbed soil surface, is held in the

soil profile and then quickly used by dense networks of roots.

The constant, living presence of roots in the soil efficiently transports nutrients and water upward and the products of photosynthesis downward. Some of these energy-rich products leak back into the surrounding soil where the living microbiological communities subsequently assist in their conversion to soil humus. Very little in the way of nutrients and water runs off the soil surface and very little makes its way through the soil beyond the reach of perennial roots. Most importantly, perennial roots hold tightly the fertile topsoil.

Diversity of species

Another important key to the prairie's success is the way in which different plant groups (e.g., cool and warm season grasses, legumes and sunflower family members) utilize resources. The plant groups complement one another in the use of resources across space and time. For example, cool season grasses grow rapidly early in the season using the available sunlight, nutrients and soil moisture. Later, warm season grasses put on growth, using resources that would be missed by cool season grasses, which shut down in the heat of the summer. Different root structures also use resources at different soil depths. Fibrous, widely spreading grass roots, for example, draw on near-surface resources while taproots of prairie sunflowers or legumes stretch deeper into the soil profile. Plant diversity ensures water and nutrients are used as fully as possible throughout the year and throughout the soil profile.

While perennial, diverse plant communities sponsor soil development, annual, uniform plant communities foster soil degradation. A century and half ago, when aggressive conversion of much of North America's grassland regions to annual cropping began, the conservatism inherent to the prairie system went largely unnoticed and unappreciated by the pioneer farmers living off the soil's stored reserves. Despite high yields, monocultures of annuals—like an undisciplined trust fund

SOIL

(continued on next page)



The mission of The Land Institute is to breed edible perennial crops and grow them in a prairie-like polyculture. Annual monoculture crops, such as corn and soybeans, require plowing, planting, chemical fertilizers and oil-based pesticides year after year, which can lead to soil erosion, worn-out land and pollution of soil and water.

The Institute is working on mixtures of perennial versions of grain sorghum, wheat, rye and sunflowers that can be grown together. Scientists also are working on domesticating perennial species such as intermediate wheatgrass, bundleflower (a legume) and eastern gamagrass (a relative of corn) to produce edible grain.

Located in Salina, Kansas, the Institute was established by Wes and Dana Jackson in 1976 to study ways to provide food, shelter and energy without degrading the planet. The Institute's research has been published in numerous scientific journals, and is frequently cited in national media, most recently the prestigious *Science* and *Nature* publications.

The Institute has a team of advisors, which includes members of the National Academy of Sciences. Currently, the Institute is seeking funds to construct and operate a research center devoted to natural systems agriculture and to work with public institutions to direct more research in this area.

Jerry Glover and Wes Jackson visited Iowa State University this spring to discuss their ideas with faculty and staff. The Leopold Center was among several sponsors for the two-day seminar.

SOIL

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recipient—spend much and save little if anything.

Tillage exposed the rich soil humus to oxygen and biological activity, thereby releasing abundant nutrients to feed the annual crops but depleting the soil's reserves. The absence of protective cover rendered prairie soils vulnerable to erosion, destroying in a few decades what it took the prairie millennia to accumulate. Much of the rainfall ran unused across the surface or drained beyond the meager reach of annual root systems. Water flow through soil profiles under annual crops may be five times greater than through soil profiles supporting perennials, resulting in losses of as much as 45 percent of the annual precipitation through subsurface flow in annual cropping systems.

Even the great stored wealth of prairie soils failed to satisfy the exorbitant expenditures required by highly inefficient annual crops. Detailed research 150 years later has revealed the costs. Water lost from annual crop fields, carrying soil particles, nutrients and agrichemicals, eventually finds its way to rivers, lakes and seas. Agriculture, because of these losses, is responsible for approximately 70 percent of river contamination and is the principal cause of water quality problems in the United States. The National Water Quality Assessment (NWAQ) program found at least one pesticide in nearly every water and fish sample collected from streams and in over 50 percent of sampled wells in agricultural areas.

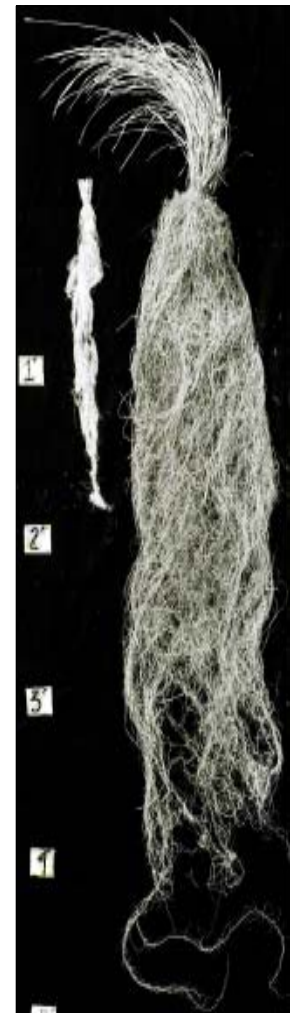
The 'dead zone'

The formation of an oxygen-depleted "dead zone" in the Gulf of Mexico—an area unable to support most marine organisms—is another example of the effects of the inefficiency of our annual cropping patterns. This zone continues to grow due to nitrogen enrichment that has been

traced to agricultural lands drained by the Mississippi River. Five states with the greatest portion of the best farmland (Class I and II soils) in the nation, all located in the Upper Mississippi River basin, are leading contributors to this "dead zone." The annual corn and soybean crops grown in these regions simply cannot use the available resources efficiently enough to prevent the bleeding off of the prairie's former wealth and the additional commercial nutrients applied annually.

To reverse trends established by 150 years of annual cropping in the prairie region, researchers at The Land Institute in Salina, Kansas, are looking to the prairie's key components—perennialism and species diversity—to develop a truly sustainable grain production system. By breeding high yielding perennial grain crops that will be grown in mixtures, The Land Institute is working toward an agricultural system in which conservatism is a consequence of farming as it is in the prairie.

Plant breeders are working both with domesticated annuals and wild perennials to achieve this lofty goal of developing "domestic prairies." It is increasingly clear that as difficult as this goal might be to achieve, it is virtually impossible to devise truly sustainable farming systems based on monocultures of annual crops in the North American prairie region. Without rich prairie soils and a sound environment to support our descendants and DNA recipients, their future in this region will be limited if possible at all.



The root system on the right is big bluestem grass, grown in a perennial system (about 18 months after seeding). The root system on the left is an annual wheat plant in late spring development. Note that roots grown in the perennial system are 4 ft. long, compared to less than half that length for the annual system.

Photo by The Land Institute.

A look at the 2002 Farm Security and Rural Investment Act

Highlights of individual programs in the 2002 farm bill, as identified by House and Senate conferees:

Conservation Reserve Program (CRP)

- Reauthorized through 2007
- Increases enrollment cap from 36.4 million acres to 39.2 million acres
- Permits harvesting of biomass for energy on CRP acreage with a reduction in rental rate
- Retains priority areas
- Expands wetlands pilot (previously restricted to upper Midwest states) to 1 million acres with all states eligible
- Makes land on which surface or groundwater is conserved eligible for enrollment
- Makes land currently enrolled in the CRP eligible for re-enrollment
- Requires the Secretary to conduct a rulemaking to achieve a balance of conservation interests in soil erosion, water quality and wildlife habitat in determining the acceptability of contract offers.

Environmental Quality Incentives Program (EQIP)

- Reauthorized through 2007
- Program level is phased up from \$200 million annually to reach \$1.3 billion annually, an increase of more than six-fold, with livestock producers receiving 60 percent of annual funding, and crop producers receiving the other 40 percent.
- The water conservation program provides a total of \$600 million for cost-share incentives and assistance for efforts to conserve ground and surface water. Of this amount, \$50 million is reserved specifically to assist producers in the Klamath Basin.
- Provides explicit authority for the Secretary to implement an incentives payment program for producers of annual and perennial crops, such as tree nuts or fruits
- Allows EQIP contracts to be from 1 to 10 years in length with producers receiving payment the same year in which they sign the contract
- Total payments for an individual or entity may not exceed, in the aggregate, \$450,000 for all contracts entered into during the period of fiscal years 2002 through 2007, regardless of the number of contracts.

Wetlands Reserve Program (WRP)

- Reauthorized through 2007
- Increases enrollment cap from a total of 1,075,000 million acres to 2.275 million acres

Wildlife Habitat Incentives Program (WHIP)

- Reauthorized through 2007
- The new funding total of \$700 million is greater than a 10-fold increase over the amount committed to the program since the last farm bill.

Farmland Protection Program (FPP)

- Reauthorized through 2007
- The new funding total of \$985 million is nearly a 20-fold increase over the amount committed to this program since the last farm bill.
- Makes agricultural land that contains historic or archeological resources eligible.

Grassland Reserve Program

- Provides \$254 million in total funding for this new program
- Provides 1 million acres to native grass and 1 million acres devoted to restored grasslands
- Divided 40/60 between agreements of 10, 15, or 20 years and agreements and easements for 30 years and permanent easements.

Small Watershed Dam Restoration: This program provides \$275 million in new-program funding for the rehabilitation of aging small watershed impoundments that have been constructed over the past 50 years.

Conservation Security Program: This program provides \$2 billion for this new national incentive payment program that rewards producers for maintaining and increasing farm and ranch stewardship practices.

Underserved States: This program was started in the Agricultural Risk Protection Act of 2000 and is continued with a total funding level of \$50 million.

Desert Terminal Lakes: This program provides \$200 million in new-program funding to help conserve desert terminal lakes. These funds cannot be used for the purchase or lease of water rights.

Protection of Private Information: This program provides producers participating in conservation programs with protection against the release of confidential information by the agency.

Conservation programs conflict not complement

CONSERVATION

(continued from page 1)

Green payments

For the first time in history, federal farm law contains a program consisting of “green” payments. The CSP provides incentive payments to agriculture producers who adopt and maintain conservation practices on working lands. Rather than traditional federal programs that base payments on crop production, and thereby provide an incentive to overproduce, this new program pays on practice rather than production. Both existing and new conservation practices on any farm and ranch are eligible for this three-tiered system of increasing rewards for increasing environmental management. Additionally, a program based on conservation practices is not subject to any restrictions or limitations under international trade agreements.

Perhaps the greatest victory achieved by CSP supporters was the designation of the program as an entitlement program. This unexpected but dearly sought outcome means that funds must be there for any farmer or rancher who voluntarily enters into a CSP contract. Unlike what has become characteristic of so many conservation programs, no waiting lists or empty budgets will stand in the way of good intentions.

Theoretically, this could make the budgeted \$2 billion grow larger in actual application. But for many supporters such an occurrence would be welcome evidence of the viability of revamping all farm policy in the future. While CSP is yet a still-forming first step, it is a vehicle that could demonstrate a better way than traditional, big-producer biased, commodity-based supports.

Opening the door

Conversely, the changes in EQIP chart a road map for industrial-scale agriculture to reach the desired destination of federal funds.

EQIP has long been a productive and popular program, so popular that its allocations were so routinely exhausted that just one in five who qualified for a contract actually received one. An increase in funding was the goal of all,

CONSERVATION (continued on next page)

CONSERVATION

(continued from previous page)

but the bump in the budget from the current \$2 million to an eventual \$1.3 billion annually was not the only change. Most prominent was the removal of the restriction on confined animal feeding operations (CAFOs) receiving EQIP dollars for building waste storage structures.

In combination with this open door for factory farms came the rewriting of EQIP payment limitations. Previously the cap for a minimum five-year contract was \$50,000, the new rules change the five-year minimum to one year and set the maximum payment limit at \$450,000 for any entity obtaining one or multiple contracts between now and 2007. So where CAFOs previously were not eligible for any money, they may now receive upwards of half a million dollars of taxpayer funding to cover a basic business expense.

And so we have a conflicted conservation title. But where the policy seems to strike out in opposite directions, the gravest concern focuses on which side will progress the furthest.

NOTE: Brad Redlin is a federal policy analyst at the Center for Rural Affairs located at Walthill, Nebraska. He can be reached at (402) 846-5428 or by e-mail, bradr@cfra.org.



Brad Redlin

Funds for farmers markets

The 2002 farm bill provides \$15 million to fund the Senior Farmers' Market Nutrition program. In 2001, the U.S. Department of Agriculture began to provide coupons to low-income seniors for use at farmers' markets, roadside stands and community supported agriculture enterprises. The program served more than 380,000 seniors, averaging about \$20 per person.

The bill also includes new funding to promote farmers' markets and direct farm marketing, including schools buying from local farmers. Iowa has more than 125 farmers markets.

BOOK REVIEW

Leopold for a new generation of readers

Aldo Leopold: American Ecologist

Peter Anderson

Franklin Watts, Inc., 1995
63 pp., \$22

Aldo Leopold was an American ecologist, ranger, state park manager, and holder of many other ranks concerned with wildlife and nature. But just what is an ecologist? An ecologist is someone frequently involved with the outdoors who studies the relationship between plants and animals.

Aldo Leopold was an ecologist even during his early years, learning the language of birds, animal tracks, geography, and about the water's creatures. When he was in his teens, his father, Carl Leopold, gave Aldo his first gun, a double-barrel shotgun for hunting.

Carl gave his son the gun only if Aldo promised to live by this rule: "Never kill more than you need or kill just for fun," which Aldo always followed. When Aldo attended boarding school in Lawrenceville, New Jersey, he was known as "nature-boy" because of his habit of taking long nature walks, or tramps, through the woods.

After Leopold graduated from forestry school at Yale University, he was hired by the U.S. Forest Service to help with grazing problems in the western states of New Mexico, Colorado and Arizona. When he was called to work out a difference with sheepmen, he had to sleep out in a bad storm and got sick. It was a serious kidney disease called nephritis and Aldo almost died.

He had to leave his ranger job for six months.

His next task was to write a guide-book for foresters about the outdoors. He also began to work with local groups to support laws that regulated hunting and preserved wilderness areas. Because of

his health problems, he decided to leave the Southwest for an office job with the U.S. Forest Products Laboratory in Madison, Wisconsin. There he and his wife, Estella, and their four children bought an abandoned farm. The Leopold family restored the farm and made it into a forest, bringing back the plants and wildlife. Aldo Leopold died fighting a backyard fire. He had a heart attack, and then fell down in the grass where his body was found.

This book is probably best for third through sixth

graders, although others will enjoy it. The author explains Aldo's adventures in easy but interesting terms and with a lot of photographs. More information about how Aldo got people to cooperate with his ideas would have made it an even better book.

Aldo Leopold was a man who dedicated his life to the cause of ecology in America. His ideas are important for the whole world. —*Tim Richard*

EDITOR'S NOTE: Tim Richard, 11, will be a seventh grader at Ames Middle School. He is the son of Clare Hinrichs and Tom Richard, professors affiliated with ISU's Graduate Program in Sustainable Agriculture.



Tim Richard, who's also interested in ecology, pollinates sweet corn at his home last summer.

Other books about Aldo Leopold for young readers

- *Aldo Leopold: Living with the Land*, by Julie Dunlap. Twenty-First Century Books, 1993.
- *Aldo Leopold: Protector of the Wild*, by Della A. Yannuzzi. Millbrook Press, To be published July 2002.
- *Earthkeepers: Observers and Protectors of Nature*, by Ann T. Keene. Oxford University Press, 1994.
- *Of Things Natural, Wild and Free: A Story about Aldo Leopold*, by Marybeth Lorbiecki, Carolrhoda Books, 1993.

Other educational materials are available from The Leopold Education Project, toll-free telephone: (877) 773-2070; or on the web at: <www.lep.org>.



From Farm to Fork
The Leopold Center scheduled several activities for Cornell University Dining Services director Nadeem Siddiqui during his visit in April.

Top: Siddiqui (at right) meets with student Nathan Dahlen. Bottom: Members of a faculty/student panel discussed their views about having locally grown food on campus.



Local foods on campus? This chef makes it happen

When Nadeem Siddiqui took over the Cornell University Dining Services in 1999, he wanted to know how much of the food came from local farmers. The answer was “not much,” but his next question was “Why not?”

This innovative and successful food service director has been searching for good reasons not to serve locally grown foods ever since — and he hasn’t found a good answer yet. In fact, within two years his operation was buying one-third of its food from New York farmers, processors and vendors. Cornell University serves about 27,000 meals every day.

Siddiqui came to Iowa State University to present his ideas at an April 4 forum, “From Farm to Fork,” organized by the Leopold Center’s marketing and food systems initiative.

In addition to the forum, the Leopold Center arranged a meeting for Siddiqui with leaders of ISU Food Service and Practical Farmers of Iowa to discuss challenges that currently prevent more locally grown food being served at ISU residence halls and the Memorial Union. Further discussions will be held when the new ISU Dining services director begins work in July.

Center hosts its first ag policy forum

The first event showcasing on the Leopold Center’s new policy initiative gave the 30 invitees a chance to hear five different but enlightening perspectives on agriculture and public policy. “The Future of Agriculture: A Policy Discussion” was held April 8 in Ames and was organized by Center associate director Michael Duffy.

The purpose of the session was to explore the options, alternatives and possible consequences of potential policies for Iowa and U.S. agriculture. Authorities from around the country offered their views and a Canadian expert presented a perspective from outside the United States.

The day’s speakers were:

- Catherine Woteki, dean of the College of Agriculture, Iowa State University;
- Cooper Evans, former member of U. S. House of Representatives (Rep., Ia);
- Daryll Ray, professor, Blasingame Chair of Excellence and Director of Agricultural Policy Analysis Center, University of Tennessee;
- Moura Quayle, dean of the College of Agriculture, University of British Columbia, Canada; and
- Karl Stauber, President, Northwest Area Foundation.

A summary of the presentations is available on the Leopold Center web site, <www.leopold.iastate.edu>.

Center reports on 20 completed projects

Foxtail seeds, organic apples, local food networks and grass-based dairies are just a few of the topics covered in the Leopold Center’s 2002 *Center Progress Report*.

The 64-page volume, the 11th in a series, highlights the Center’s research and demonstration efforts that were completed within the past year. The projects were conducted on Iowa farms, at ISU’s outlying research farms, and in urban and suburban areas of the state. Summaries of the 20 research and education projects completed in 2001, plus illustrations, are grouped in these categories:

- Agriculture and communities,
- Crop systems,
- Ecology,
- Livestock systems, and
- Special projects.

The summaries are condensed from longer final reports submitted by principal investigators. Information is provided for principal investigators on each project for those wishing to contact the investigator directly for more information.

To receive a free copy of the Leopold Center’s 2002 *Center Progress Report*, contact the Center at 209 Curtiss Hall, Iowa State University, Ames, Iowa 50011-1050, or call (515) 294-3711, or via e-mail: leocenter@iastate.edu.

New report on structure of ag

During World War II, six million farms produced all of the nation’s food. Today fewer than a million farms produce 90 percent of all farm output in an increasingly concentrated industry.

A new report from the National Research Council and USDA’s Board on Agriculture and Natural Resources shows that publicly funded research has played an important—but not an exclusive—role in changing the structure of agriculture. The report is the result of a 10-member panel that included Leopold Center director Fred Kirschenmann. The report recommends that public-sector research be broadened beyond productivity to benefit farmers in diverse production systems and help agriculture produce public goods. The 158-page report can be downloaded on the web at: <www.nap.edu/catalog/10211.html>.

FROM THE FIELD : David Petersen of Blue Grass

Integrating enterprises key to success

By Laura Miller
Newsletter Editor

Management practices that David Petersen began using 22 years ago out of necessity have turned his family farming operation into a model for sustainability.

He uses almost no purchased fertilizer. Instead, he uses livestock manure from his small dairy operation as injectable fertilizer and has produced high-yielding corn crops. More than one-third of his 430 tillage acres are rotated with forage crops – alfalfa, oats and rye – which are big components in building low-cost rations for his dairy herd and replacement heifers.

The result is a successful business that has provided full-time employment and no need to resort to off-farm income for David and his wife Amy; part-time employment for their two children and three employees; and the financial means for three other family members to retire. Plus they've been able to maintain two Century Farms in a rapidly-growing area west of Davenport in southeast Iowa.

"I like to call myself a total resource manager," said David Petersen. "The cows feed the land, the land feeds the crops, and the crops feed the cows."

Petersen said that he and his wife had few options but to use all available resources when they began farming in 1980 as new graduates of Iowa State University. They accepted an offer to rent 160 acres from Amy's mother and began farming on their own in 1981. Later that year they moved 24 cows and 12 heifers from David's 4-H project to their farm and established Majestic Manor Dairy.

"We operate a dairy business in a non-dairy neighborhood, but it provides several benefits," he explained. "First, we had full-time employment for both of us, and we could enhance soil quality by producing forage and using manure from the livestock. We also had a lab to develop a cattle seedstock business, and we add value to the crops and the land."

In 1982, they purchased the 10-acre farmstead and built a silo, adding a manure pit and free-stall housing the next year.

"Majestic Manor operated effectively for more than 10 years on only 160 acres and 50 cows," Petersen said. "We also



Since they began farming in 1980, David and Amy Petersen have added several enterprises to a diversified operation.

could be business partners and stay-at-home parents."

Their daughter Dana recently completed her first year in agricultural business at Iowa State University, and their son Nolan is a fifth grader at Blue Grass Elementary School. They are in the process of building a \$150,000 liquid manure storage facility so they can increase the size of their dairy herd from the current 90 cows to 115 cows. They also plan to purchase an uncle's Century Farm where much of their replacement heifer herd is housed.

Over the past two decades, Petersen said he's seen the organic matter of his farm's soil increase from an average of 2.14 percent to 3.38 percent, which he attributes to the manure and forage crops. He estimates that he uses 90 percent of the livestock manure as injectable fertilizer for crops, and has invested \$20,000 to improve field drainage and waterways. He has sold genetic seedstock in France, Germany and Australia, and provided the first embryo transfer Holstein calves born in Turkey.

"In a production agriculture system, the high road to efficiency usually rewards those who choose to get bigger," Petersen said. "We've taken the 'road less traveled' by using a systems approach to add value and achieve efficiency by integrating enterprises, not simply getting bigger. We think this integrated approach to managing a family farm results in a holistic, sustainable business model."

First Spencer Award winner announced

The owner and operator of a family-owned dairy near Davenport has been selected as the first recipient of a new sustainable agriculture award from the Leopold Center.



David Petersen

David Petersen, Blue Grass, Ia., will receive \$1,000 as part of the 2002 Spencer Award for Sustainable Agriculture. The award will be presented July 3 at a regularly scheduled meeting of the Leopold Center advisory board.

The new award was established in 2001 to honor farmers, researchers and educators who have made a significant contribution toward the ecological and economic stability of mainstream family farms in Iowa. The award honors the beliefs, innovations and stewardship of Norman and Margaretha Spencer, who farmed near Sioux City for 40 years. It is funded by an endowment from the Spencer family, who asked that the Leopold Center administer the award.

Petersen and his wife Amy manage a 90-cow herd as part of their Majestic Manor Dairy enterprise and operate a genetic seedstock and replacement heifer business. They also raise corn, no-till soybeans, and forage crops of alfalfa, oats and rye on 430 acres with little purchased fertilizer. Petersen has served on the National Milk Producers Young Cooperators Advisory Council and is a trustee on the Iowa 4-H Foundation. He received the Muscatine District Soil Conservation Award in 1988 and has been a consistent member of the 200 Bushel Corn Club while using injectable manure from his dairy operation as fertilizer.

Petersen was chosen for the award by an eight-person selection committee comprised of members of the Leopold Center advisory board and the Spencer family. For more information about the award or to learn more about the Spencer family, check out the the Leopold Center web site: <www.leopold.iastate.edu/about/center/spenceraward/spenceraward.html>.

Guidelines for the 2003 award will be announced in the fall.



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Letter

HIGHLIGHT EVENTS

Summer time means field days

Sustainable farming practices and Leopold Center-funded projects will be highlighted during field days hosted by Iowa State University's Research and Demonstration Farms and Practical Farmers of Iowa (PFI).

PFI Field Days PFI has scheduled 13 field days and community days. The on-farm demonstrations will be held throughout the state through mid-September. Producers at the sites will demonstrate on-farm research and answer queries about pigs in hoop houses, weeds, organic farming and alternative crops. The Leopold Center supports PFI's on-farm research program. For dates, check the PFI web page at: <www.pfi.iastate.edu> (look under What's New).

ISU Field Days A variety of topics related to crops and livestock will be covered at 14 field days through September. Three specialty field days, all on July 2, include a 9:30 a.m. forage tour at the Northwest farm near Cherokee, a native grass day from 6-9 p.m. at the Southeast farm near Crawfordsville, and a 6:30 p.m. weed tour at the Northern farm near Kanawha. Garden and acreage field days will begin Aug. 1. For more information, check with your local ISU Extension office or go to the web: <www.ag.iastate.edu/farms/fielddays.html>.



Pesek Colloquium Globalization has confused many of the issues relating to hunger and sustainable agriculture, and it may be time to see where past policies are leading. Atlantic farmer Denise O'Brien (at podium) told about 150 people who attended the Pesek Colloquium on Sustainable Agriculture. The March 27 town meeting at Atlantic brought together panelists to discuss ideas presented by guest lecturer Per Pinstrup Andersen, winner of the 2001 World Food Prize. Panelists (left to right) included Dave Williams, Villisca; Neil Hamilton, Drake University; and Catherine Woteki, Iowa State University. The Leopold Center was a sponsor of the two-day event coordinated by the Henry A. Wallace Endowed Chair for Sustainable Agriculture at ISU.