

Competitive grant projects, new and renewed, for FY2011

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

Ecology Initiative

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

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

Total amount awarded – \$541,739

Total number of projects – 19

New Ecology grants – FY2011

Total amount awarded – \$279,496

Total number of projects – 8

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

B. Leu, ISU Extension, Fairfield

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

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

M. Liebman, ISU agronomy

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

Improving soil quality by conserving insect pathogens, 2 years

A. Gassmann and E. Hodgson, ISU entomology

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

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

R. Harr, ISU natural resource ecology and management

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

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

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

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

Optimizing buffer strips for improved ecosystem services, 3 years

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

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

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

R. DeHaan, Dordt College, Sioux Center

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

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

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

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

NEW

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

R. Harr, ISU natural resource ecology and management

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

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

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

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

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

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

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

J. Russell, ISU animal science

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

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

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

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

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

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

Transitioning to ecologically functional production systems, 3 years

K. Hofmockel, ISU ecology, evolution and organismal biology

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

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

J. Russell, ISU animal science

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

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

M. Castellano, ISU Agronomy

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

Marketing and Food Systems Initiative

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

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

Total amount awarded – \$200,565

Total number of projects – 7

New Marketing Initiative grants – FY2011

Total amount awarded – \$109,597

Total number of projects – 6

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

L. Tang, ISU agricultural and biosystems engineering

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

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

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

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

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

K. Greder, ISU human development and family studies

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

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

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

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

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

B. Ranum, ISU Extension, Winneshiek County

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

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

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

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

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

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

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

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

P. O'Malley, ISU Extension, Johnson County

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

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

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

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

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

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

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

NEW

In good company, 1 year

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

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

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

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

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

NEW

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

J. Flora and C. Flora, ISU rural sociology

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

NEW Iowa immigrant and refugee incubator farm program, 1 year

N. Wuertz, Lutheran Social Services in Iowa

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

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

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

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

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

G. Hu, ISU industrial and manufacturing systems engineering

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

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

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

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

Regional flavors, 2 years

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

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

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

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

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

South central Iowa local foods network, 1 year, extended

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

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

Transplant production decision tool for vegetable producers, 2 years

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

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

Policy Initiative

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

New Policy grants – FY2011

Total number of projects – none

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

C. Peterson, Iowa Farmers Union, Ames

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

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

N. Baer, Iowa Environmental Council, Des Moines

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

Cross-Cutting Initiative

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

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

Total amount awarded – \$70,000

Total number of projects – 2

New Cross-Cutting Initiative grants – FY2011

Total amount awarded – \$206,039

Total number of projects – 5

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

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

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

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

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

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

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

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

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

Grass-Based Livestock Working Group, 3 years, extended

A. Larson, ISU Extension

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

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

T. Opheim, Practical Farmers of Iowa

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

NEW Iowa Farm Energy Working Group, 2 years

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

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

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

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

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

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

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

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

H. Lewis, National Center for Appropriate Technology






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



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