

**CONSERVATION INNOVATION GRANTS**  
Semi-annual Progress Report

Grantee Name: Leopold Center for Sustainable Agriculture	
Project Title: Stewardship in the Bioeconomy: An Iowa Market-Based Model	
Agreement Number: NRCS 69-3A75-7-88	
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Project End Date: June 30, 2011	

In 2007 Iowa Learning Farms (ILF) Program Manager Jerry DeWitt submitted a proposal for USDA/NRCS Conservation Innovation Grant (CIG) funds in response to a pair of proposed cellulosic biomass projects in Iowa. POET Energy's Emmetsburg, IA, plant in northwest Iowa had announced long-term plans to begin contracting with area farmers and landowners to provide corn stover for cellulosic ethanol production. Meanwhile, in central Iowa, a regional electricity company was proposing a biomass-fed power generation plant near Marshalltown. Primary objective of the ILF CIG proposal was to remind Iowa farmers and landowners to consider potential negative effects of large-scale, annual biomass removal from their fields. Increased risk of soil erosion and possible loss of soil quality were seen as potential negative impacts of biomass removal. A goal of the ILF CIG proposal was to help industry and farmers create biomass removal contracts that maintained long-term stewardship and productivity of Iowa farmland.

Shortly after ILF was awarded CIG funds plans for the proposed central Iowa biomass-fed power plant were abandoned because of backlash from potential customers. ILF and ISU Extension personnel participated in a series of face-to-face meetings with representatives of POET Energy to learn about POET's Project LIBERTY. Project LIBERTY is POET's framework to develop, test, and implement add-on capacity to produce ethanol from corn stover in addition to their plant's existing capacity to produce ethanol from corn grain. Initial fears that Project LIBERTY biomass harvest and removal would include all non-grain aboveground corn stover (resulting in acres of harvested corn fields with no overwintering surface crop residue to protect against soil erosion) were eased when POET announced they would focus specifically on collection and processing of corn cobs for cellulosic ethanol production. Efforts between ILF and ISU Extension to work collaboratively with POET Energy ultimately proved futile because of POET's production delays and desire to protect their patentable cellulosic ethanol production processes.

Because of the limited potential to promote bio-economy stewardship with POET Energy ILF staff made the decision to refocus CIG objectives on farmer and public education about the importance of crop residue on long-term productivity of Iowa soils. CIG funds were used to help launch "Residue Matters", a partnership with Iowa Department of Land

and Agriculture Stewardship, Division of Soil Conservation, Iowa Department of Natural Resources, and northwest Iowa regional agricultural supplier Ag Partners. Representatives from ILF and project partners worked together to encourage northwest Iowa farmers to consider crop management practices that would maintain higher levels of crop residue on the soil surface to minimize soil erosion and improve long-term soil health and quality. Since its launch in September 2009 the Residue Matters campaign effort has expanded to the Lake Red Rock area southeast of Des Moines in central Iowa. Local NRCS staff and individuals dedicated to reduced sediment transport from area fields into Lake Red Rock are key players in this effort.

In March 2010 CIG funds were used to help ILF finance “listening sessions” with Soil and Water Conservation District Commissioners at the commissioners’ spring meetings of the nine regional SWCDs across Iowa. A total of 215 commissioners participated in the nine regional listening sessions, with single-session commissioner attendance ranging from 17 to 29. Overall goal of the listening sessions with the SWCD Commissioners was to increase understanding about farm-level decisions and resulting impact on the environment. Commissioners were asked open-ended questions about why they originally ran for the elected position, tillage and soil conservation management changes they had seen on the land in recent years, how they worked with their local district conservationist, and criteria used to set priorities for funding of conservation practices. Results from the March 2010 listening sessions, along with separate listening sessions scheduled specifically with farmer groups, NRCS staff, and Iowa Department of Natural Resources staff between 2008 and 2011 were summarized in a 150-page monograph titled “Water Quality Matters to Us All” in summer 2011.

In May 2010 CIG funds were used to help ILF launch, support, and staff a 22-foot portable outreach and education trailer named the “Conservation Station”. Demonstration and education features of the Conservation Station (CS) include a portable rainfall simulator that extends from the opened back end of the trailer and an interior walk-through learning lab featuring hands-on, interactive displays, posters, and computer-based tools. Switch-out learning modules dedicated to soils, water, wetlands, and prairies engage visitors of all ages. The rainfall simulator frame holds five 8-inch depth trays with soil “slices” cut from the surface of long-term tillage research plots at an Iowa State University Agronomy Research Farm near Ames, IA. Simulated rain falls on the demonstration trays, included soil managed for at least 10 years with no-tillage, fall disk-chisel plus spring field cultivator tillage, or intense tillage (ex. fall moldboard tillage plus multiple seedbed preparation tillage operations); an additional agriculture-oriented tray demonstrates the soil-preserving benefits of grassed buffer strips. Urban-oriented trays demonstrate rainfall run-off from poured concrete v. permeable pavers. Simulated slope of all trays is easily adjusted, and simulated rainfall rate can be adjusted with various nozzles. Surface run-off from all trays is collected in plastic jars; a second set of plastic jars collects simulated rainfall from tubing representing sub-surface agriculture drainage tiles at the bottom of the 8-inch depth trays. The demonstration affords an excellent visual display of differences in soil lost (relatively clear v. turbid water collected) and water volume collected as run-off from the respective trays. Visitors learn about potential phosphorus fertilizer losses that accompany surface soil (sediment) losses,

along with potential nitrogen (nitrate) fertilizer losses that accompany sub-surface drainage. ILF staff members have filled close to 130 single-day requests to demonstrate the CS trailer since May 2010 at outdoor classrooms (individual schools and NRCS or Conservation Board-led county-wide events), ILF project field days, county fairs, farmers markets, appearances accompanying the Ames Public Library Bookmobile, and other public venues.

In March 2011 CIG funds were used to help ILF finance an afternoon tillage and soil management workshop during the Iowa Water Conference, an annual conference for Midwest university experts and agency personnel addressing soil and water quality issues. Conference organizers were keen to attract more farmers and landowners to the 2011 Iowa Water Conference; to that end, ILF was asked to coordinate the afternoon workshop session that featured several ILF farmer-partners sharing their experiences with no-till, strip-tillage, cover crops, and other best-management practices to reduce soil erosion and subsequently improve water quality. The ILF workshop session was very-well received, and ILF has been asked to expand our role with the 2012 Iowa Water Conference.

A summary report of ILF field day and Conservation Station outdoor classroom participant evaluations is included with this project final report as a separate file. Evaluations from 2010 indicate that CIG funds used to support outreach and education efforts about the importance of crop residue and the Conservation Station are making a difference. After attending an ILF event or touring the ILF Conservation Station, nearly one-third of the farmers and landowners surveyed reported an increased awareness of the importance of maintaining crop residue to reduce soil erosion and improve long-term soil quality; farmers and landowners also reported significant increases in their adoption of no-till, strip-tillage, use of fall-seeded cover crops, and installation/establishment of soil-conserving structures (terraces, waterways, and grassed buffers) in their farmland. We are also very encouraged by the excited response of Iowa youth and teachers to the soil conservation and enhanced soil and water quality message conveyed by the ILF Conservation Station.

#### April 1 – June 30, 2011

A) Summarize the work performed during the project period covered by this report:

Eight workshop/field day outreach events that promoted soil and water conservation and residue management were held throughout Iowa:

On April 5, Iowa Learning Farms (ILF) and Chickasaw County NRCS Resource Conservationist Jay Jung hosted a strip-tillage/no-till informational workshop in New Hampton, IA. Floyd, Mitchell, and Fayette County ILF farmer-partners Jon Gisleson, Collin Jensen, and Randy Norby offered insights and answered farmer/landowner questions about strip-till or no-till equipment, fertilizer nutrient and weed management, and related issues. Approximately 40 farmers and agency staff attended the New Hampton workshop.

On April 12, ILF coordinated a no-till planter workshop featuring ISU Extension Ag Engineer Mark Hanna for approximately 45 Kirkwood Community College agriculture students in Cedar Rapids, IA. Many of the Kirkwood agriculture students intend to return to their home farms, or serve as consultants to other farmers.

On April 18, Hamilton County ILF farmer-partner Arlo Van Diest and ISU Extension Field Agronomist John Holmes hosted a strip-tillage open house at the Van Diest farm. Van Diest detailed the soil quality benefits he has experienced after 10 years of using strip-tillage. Of particular interest were Van Diest's insights about spring strip-tillage seedbed preparation for corn following corn. The public was invited to a follow-up strip-tillage open house at the Van Diest farm on June 14, showcasing early-season corn growth and featuring additional perspective about fall strip-tillage management from Mike Rhoades, an agronomist working with a pair of northwest Boone County farmers. On June 1, ILF and Practical Farmers of Iowa (PFI) hosted a cover crop management field day in Washington County (SE) Iowa with ILF farmer-partners Rob Stout and George Schaefer. Stout and Schaefer shared their experiences aerial-seeding a winter rye cover crop into standing corn or soybean in early September 2010; in spring 2011 both farmers terminated winter rye growth with glyphosate herbicide. Stout planted no-till soybean in 15-inch rows and Schaefer no-till planted corn through the cover crop residue. Approximately 40 farmers, landowners, and ag professionals attended the field day to learn about no-till and cover crop management to minimize soil erosion and improve soil quality.

On June 17, ILF, PFI, and ISU Extension Field Agronomist Paul Kassel hosted a strip-tillage and cover crop management field day near Ruthven, IA, with Palo Alto County farmer Jeff Joyce. Joyce aerial-seeded a winter rye cover crop into standing soybeans on August 25, 2010; following soybean harvest, a late October strip-tillage operation included application of dry fertilizer and anhydrous ammonia + N-Serve stabilizer. Over 50 farmers and landowners attended the field day to learn about Jeff Joyce's pairing of a fall-seeded cover crop and strip-tillage to minimize soil erosion and improve soil quality.

On June 21, ILF partnered with regional farmer cooperative Key Co-op to host a strip-tillage field day in Story County near Roland, IA. Farmer Mike Hermanson showcased his farm's Environmental Soil Warrior two-pass, coulter-only strip-tillage equipment and management system utilizing fall-applied poultry manure. The field day also included tours of two other field sites (one 2011 corn and one 2011 soybean field) that were custom strip-tilled in fall 2010 by Key Co-op personnel, using a local farmer's John Deere strip-tillage equipment. We hope to encourage other regional farmer cooperatives to provide leasing of cooperative-owned strip-tillage equipment or to provide custom strip-tillage by two or three well-trained cooperative employees using a dedicated tractor and cooperative-owned strip-tillage equipment.

On June 22, Muscatine County ILF farmer-partner Doug Nolte, Nolte's father-in-law Larry Schnittjer, and ISU Extension Field Agronomist Virgil Schmitt hosted a strip-tillage field day near West Liberty, IA. Nolte detailed his experiences using strip-tillage

equipment leased from a local agricultural supplier for spring strip-tillage (prior to 2009 and 2010 crops) and fall strip-tillage (prior to 2011 crop).

An educational module on impacts of soil erosion on water quality was featured in the ILF Conservation Station during multiple single-day youth outdoor classroom appearances between April and May 2011. A total of 35 single-day appearances featuring the ILF Conservation Station or ILF portable rainfall simulator trailer were scheduled between April and June 2011. Other summer 2011 Conservation Station appearances are scheduled at statewide farmer's markets, field days, and county fairs.

B) Describe significant results, accomplishments, and lessons learned. Compare actual accomplishments to the project goals in your proposal:

The Conservation Station and rainfall simulator provide sensory learning experiences to specific audiences, enhancing their retention of the knowledge gained. The undisturbed soil blocks with various soil/tillage treatments provide a dramatic demonstration of what happens when soil hits the surface. Many farmers and urban people alike have commented on how effective the conservation treatments are in allowing water to penetrate the surface and to prevent run-off.

The top Iowa Learning Farms "Converting Your Planter to No-Till" video segment has had 4,875 views on YouTube; meanwhile, our "Don't Call it Dirt: A Passion for Soil" video has had 1,358 views on YouTube.

Workshop and field day attendees are highly-engaged with our farmer and campus expert presenters. Connections are made and learning networks formed at these education and outreach events which help encourage farmers to "take the first/next step" in adopting no-till, strip-tillage, and/or cover crop management strategies on their farms.

C) Describe the work that you anticipate completing in the next six-month period:

An extension to June 30, 2011 was granted to complete this project.

Our how-to videos, including "Converting Your Planter to No-Till" and "Adding a Cover Crop to a Corn-Soybean System" are popular items being actively distributed at ILF field days and workshops and being uploaded on You Tube.

A new cover crop management handout summarizes research and management ideas presented by USDA/ARS National Laboratory for Agriculture and the Environment research agronomist Jeremy Singer during a March 2011 ILF Webinar. The four-page handout answers commonly-asked questions by farmers and landowners interested in adding fall-seeded cereal grain cover crops to their corn-soybean or continuous corn rotations.

October 1, 2010 – March 31, 2011

A) Summarize the work performed during the project period covered by this report:

Nine outreach events that promoted soil and water conservation and residue management held throughout Iowa:

- February 18 focus group/listening session with 8 Poweshiek County farmers and landowners, including discussion of no-till/strip-till crop management
- February 22 focus group/listening session with 11 Sac, Ida, and Carroll County farmers and landowners, including discussion of no-till/strip-till crop management
- February 24 focus group/listening session with 15 Chickasaw and Floyd County farmers and landowners, including discussion of no-till/strip-till crop management
- March 2 focus group/listening session with 10 Des Moines-area urban residents, including discussion of no-till and strip-till crop management
- March 8 farming with reduced tillage and increased surface residue workshop at the 2011 Iowa Water Conference in Ames, IA (280 attendees)
- March 10 cover crop management workshop in Spencer, IA (50 attendees)
- March 18 Northwest Iowa No-Till and Strip-Till Workshop in Le Mars, IA (140 attendees)
- March 24 cover crop management workshop in Rock Valley, IA (35 attendees)
- March 29 Iowa Learning Farms Conservation Station mobile outreach and education trailer viewed by 165 Creston Community Schools elementary students, 26 high school students and 20 Southwestern IA Community College agricultural studies students

An educational module on impacts of soil erosion on water quality was featured in the Conservation Station on March 29. The Conservation Station is already scheduled to make over 50 single-day appearances statewide between April and October 2011. These appearances will include outdoor classrooms, farmer's markets, field days, and county fairs.

Listening sessions were held with three farmer groups and an urban resident group in February-March 2011. Facilitator was Jacqueline Comito, with assistance from Aaron Andrews and John Lundvall. The sessions were all digitally recorded, transcribed and coded.

B) Describe significant results, accomplishments, and lessons learned. Compare actual accomplishments to the project goals in your proposal:

The Conservation Station and rainfall simulator provide sensory learning experiences to specific audiences, enhancing their retention of the knowledge gained. The undisturbed soil blocks with various soil/tillage treatments provide a dramatic demonstration of what

happens when soil hits the surface. Many farmers and urban people alike have commented on how effective the conservation treatments are in allowing water to penetrate the surface and to prevent run-off.

The top Iowa Learning Farms “Converting Your Planter to No-Till” video segment has had 4,113 views on YouTube; meanwhile, our “Don’t Call it Dirt: A Passion for Soil” video has had 1,062 views on YouTube.

The listening sessions offered insight into farmers’ and urban residents’ perspectives, knowledge, and “knowledge gaps” about soil conservation and water quality among farmers and urban residents.

Reaction to our “farming with reduced tillage and increased surface residue” workshop at the 2011 Iowa Water Conference was positive. Workshop participants—generally farmers, agency staff, and technical service providers--were highly-engaged with our farmer panelists, resulting in excellent exchange of ideas.

C) Describe the work that you anticipate completing in the next six-month period:

An extension to June 30, 2011 was granted to complete this project.

Our new how-to videos, “Adding a Cover Crop to a Corn-Soybean System”, “Manure Management and Conservation”, and “From Gully to Grass: Implementing Grassed Waterways”, are being distributed and will be uploaded to You Tube. The videos are being actively promoted by Iowa Learning Farms and our partners.

The biofuels handout prepared to assist farmers and landowners considering sale of crop biomass to a biofuels company continues to be distributed though Iowa Learning Farms channels, including being available on the website and at ILF functions. The handout provides the farmer/landowner with information about contracts, soil carbon and equations to determine the costs to soil fertility at several levels of biomass removal.

#### April 1 – September 30, 2010

A) Summarize the work performed during the project period covered by this report:

9 field days that promoted soil and water conservation and residue management held throughout Iowa:

June 2	Tama County cover crop field day
June 8	Pocahontas County strip-till and no-till field day
June 17	Delaware County strip-till and no-till field day
June 30	Calumet ISU Northwest Research Farm strip till field day
July 7	Montgomery County watershed improvement and no-till field day
July 27	Webster County strip-till, no-till and cover crops field day

July-August Black Hawk Lake Watershed public discussion and landowner meeting to promote crop residue, reduced tillage, and fall stalk nitrate testing  
August 25 Monona County crop residue and soil quality field day  
August 26 Palo Alto County cover crop field day

The residue measuring portion of the Conservation Innovation Grant is completed. The spring 2009 crop residue estimates/measurements were completed by Erin Harpenau-Van Waus; the spring 2010 estimates were completed under Matt Helmer's direction by his summer interns Liz Juchems, Adam Dreeszen, Phil Grandt, Ryan Nelson, Emily Steinweg, and Emily McMains.

Educational modules on soil, water and wetlands, with age appropriate modules for elementary and middle schools, were developed and featured in the Conservation Station, a mobile learning unit. The Conservation Station made a total of 57 single-day appearances statewide between May 20 and September 30. A total of 3,013 people viewed the Conservation Station between May and September. These appearances included outdoor classrooms, farmer's markets, the Farm Progress Show and county fairs. Additionally, the rainfall simulator was demonstrated at 8 events, with a total of 3,085 people attending. One of these was the Ankeny Children's Water Festival, with 2,200 in attendance.

A biofuels handout was prepared to assist farmers and landowners in thinking through selling biomass to a biofuels company. This was based on meetings in which the biofuels industry and farmers spoke candidly to each other about expectations and concerns. The handout provides the farmer/landowner with information about contracts, soil carbon and equations to determine the costs to soil fertility at several levels of biomass removal.

Listening sessions were held with all nine Soil and Water Commissioner Districts in Iowa. Facilitators were Jacqueline Comito, Lois Wright Morton and Mary Swalla Holmes, with assistance from Erin Van Waus. The sessions were all digitally recorded, transcribed and coded. The highlights were presented to the commissioners at their state meeting in September 2010 by Jacqueline Comito.

B) Describe significant results, accomplishments, and lessons learned. Compare actual accomplishments to the project goals in your proposal:

Participation in the crop residue measurement project increased the farmers' awareness about the impact of their respective residue harvest and tillage practices on soil erosion. This project did not measure the change in management practices of the participating farmers. As a result of the study, the participating farmers have a new awareness of the impact and may now target residue removal and/or more intense tillage operations to the fields/soils that can best absorb the impact of reduced surface residue.

The Conservation Station and rainfall simulator provide sensory learning experiences to specific audiences, enhancing their retention of the knowledge gained. The undisturbed soil blocks with various soil/tillage treatments provide a dramatic demonstration of what



happens when soil hits the surface. Many farmers and urban people alike have commented on how effective the conservation treatments are in allowing water to penetrate the surface and to prevent run-off.

The top “Converting Your Planter to No-Till” segment has had 2,552 views on YouTube. One comment left at the site was: “Being absent from farming for many years and now starting up again, your series on planters is a great help. Keep up the good work.”

The listening sessions provided insight into the thought patterns and gaps in knowledge of the soil and water commissioners. They provided directions for the Iowa Learning Farm in continuing to work with the commissioners as a critical component of conservation in Iowa. For instance, a significant finding was that the commissioners did not talk about promoting residue as a conservation strategy, even though there was an entire portion of the discussion devoted to the question “Is 30% residue enough?” Commissioners are comfortable with promoting structures, but not practices.

C) Describe the work that you anticipate completing in the next six-month period:

An extension to June 30, 2011 has been granted to complete this project. During that time, work will continue on a series of how-to videos dealing with cover crops, grassed waterways, and manure application equipment that will lessen soil surface disturbance. These videos will be uploaded to You Tube and will be promoted by the Iowa Learning Farm and its partners. These videos are founded on the success of the No-Till Planter video.

The biofuels handout will be printed and distributed though the Iowa Learning Farm channels, including being available on the website and at ILF functions.

October 1, 2009 – March 31, 2010

A) Summarize the work performed during the project period covered by this report:

1. The first year of the residue measuring portion of the Conservation Innovation Grant was completed. Information that was collected includes: farmer estimate of residue cover, perception of residue, popular educational sources, tillage operations, rotation history, and actual residue measurements via line transect method. A total of 70 fields were measured among the 21 participating farmers across northern Iowa. Northern Iowa was targeted due to the presence of a cellulosic ethanol facility and the need for residue removal and silage harvest for livestock bedding and feed.

All information collected was assigned an anonymous scenario number to maintain anonymity among the group results. All information was entered into RUSLE2. A late February meeting was held in the three regions in northern Iowa. Each cooperator received an aerial photograph with approximate location of residue measurements and a summary of each participating field. Information that was included on the summary sheets were farmer residue estimation, 2009 spring measurement, RUSLE2 estimated

residue cover, 2008 fall field operations, 2009 spring field operations, soil type, soil conditioning index (SCI), soil tillage intensity rating (STIR), soil loss and 4-year rotation history. The materials provided each farmer-cooperator a one year summary of their fields based on their individual management decisions.

Thirdly, each cooperator received an anonymous group summary with all 70 scenarios categorized by soil slope (A, B, C etc.) and by RUSLE2 estimated residue cover. This allowed cooperators to be able to locate their field(s) among other farmers' fields on similar soil slopes. Likewise each farmer was able to understand different management practices that help reduce soil loss and STIR and increase SCI values. Shortly after the meeting a farmer thanked the coordinators of the residue measuring project as it helped him better understand STIR and SCI as it is related to his NRCS CSP application. Other farmers have said that the information is very helpful and are looking forward to next year's results. Residue measuring will be completed in the same fields after planting in 2010.

2. An educational DVD entitled, "Converting your Planter for No-Till Operation" was developed and distributed. The DVD highlights planter equipment modifications and adjustments that make an existing planter suitable for no-till planting. Other topics include yearly maintenance on planters and adjusting settings depending on field conditions. The DVD is divided into seven sections: Introduction/Leveling, Seed Openers, Depth Adjustment, Closing Systems, Row Cleaners and Attachments, Fertilizer Application, and Conclusion. Special segments for Case IH planters were also included due to some major differences between other planters. Hard copies and online versions are available for viewing. This series is very popular and has over 4300 hits on YouTube plus hits from the Iowa Learning Farm Facebook fan page. Through YouTube the video has been viewed in over 40 different countries worldwide. Over 600 (630) hard copies of the planter DVD have been mailed to farmers across the country. Residue Measuring Cooperators received a copy of the DVD at the late February meetings.

3. A December workshop was held for Technical Service Providers (TSP's) in northwest Iowa. A three-hour meeting was held focusing on strip-till, no-till, impacts of tillage on soil structure and quality, local research, watershed projects, and how TSP's have great potential to influence farmers and help increase conservation on Iowa's landscape. Nineteen TSP's attended the afternoon workshop. Positive comments were received from TSP's and said they would like to attend similar workshops in the future.

4. Listening sessions were held with Soil and Water Conservation District Commissioners in the nine regions of the Conservation Districts of Iowa. This complements previous listening sessions coordinated by the Iowa Learning Farm with Iowa Department of Natural Resources, Iowa Natural Resources Conservation Services, and farmer groups. The listening sessions with Soil and Water Conservation District Commissioners focused on how they as commissioners set priorities, commissioner opinions on water quality and residue management, and the importance of public education about conservation. Discussions were recorded and transcribed in order to collect accurate comments and ideas. The nine listening sessions will help us better

understand the elected position as a Soil and Water Commissioner. In the next couple of months sociologists will be analyzing the discussions and report on the findings.

5. The Iowa Learning Farm, through outside funding sources, is currently developing a mobile educational trailer/classroom called the “Conservation Station”. Half of the Conservation Station will feature a rainfall simulator component and the other half will include educational modules. One Conservation Station education module being developed focuses on residue management and soils. All ages will be reached by the educational module where it will be displayed at fairs, field days, outdoor classrooms and other related events. Over 20 events have already been booked for summer 2010. Great awareness on conservation, residue, wetlands, and soil and water quality will be delivered through the Conservation Station.

6. A demonstration field day was held in mid-November focusing on strip-tillage. The casual field day allowed farmers to attend either the morning or afternoon demonstrations of strip-till equipment from statewide suppliers. A lunch hour education session focused on research results from local strip-till and no-till plots and auto-steer GPS guidance systems. Over 45 farmers and agency personnel attended the field day. There is great interest in strip-till among those farming the Des Moines Lobe’s wet, heavy soils.

7. In March 2009 planter clinics were held at Iowa Lakes Community College near Emmetsburg and Kirkwood Community College in Cedar Rapids. The two community college events attracted over 175 students, farmers and agency personnel. A similar planter clinic was held at Kirkwood Community College in Cedar Rapids on March 30, 2010. Agenda items included information on strip-till and guidance systems, converting a planter for no-till, and a farmer panel. Farmer panelists shared their long-term experiences with no-till and strip-till. Reaching out to the community college audience is important because many students in the community college agriculture programs will graduate and go back to farming, become an area agronomist, seed dealer or a profession in a related field.

8. The Economics of Residue handout developed in spring 2009 was updated with 2010 fertilizer prices. Additional copies were produced and included in packets at the Heartland Regional Water Conference in September 2009 and Iowa Learning Farm’s “A Culture of Conservation: The Tools We Need to Grow” workshop held in Ames in January 2010. All five handouts in the series have been well-received by the public.

9. The Iowa Learning Farm, along with personnel with the Conservation Innovation Grant, is participating in a communications campaign entitled “Residue Matters.” The Residue Matters team is a combination of thirteen state agencies, educational institutes, and commodity and environmental groups. The unique feature of the campaign is the partnership with agri-business. Residue Matters is a campaign to promote the importance of residue management as it relates to soil and water quality. Three posters and four handouts were developed and distributed to NRCS offices, Iowa State Extension offices, and participating agri-businesses to facilitate outreach in the 15 northwest Iowa counties targeted by the campaign.

10. In November 2009 Conservation Innovation Grant staff attended POET Energy's Project LIBERTY field day and viewed toured available cob and stover harvesting equipment. Staff also participated in a Bioeconomy e-conference, Heartland Regional Water Conference, and the Conservation Districts of Iowa annual meeting where residue management materials were presented. We also sponsored an Iowa Learning Farm Conservationist, Steve Berger, at a February 2010 no-till and cover crop management workshop in Greene County, Iowa, where he presented information on cover crops.

11. Research has been gathered on a potential handout focusing on biofuels. The main component of the handout would include information on the biofuel discussions held last August and research conducted on the amount of stover needed to sustain soil organic carbon.

B) Describe significant results, accomplishments, and lessons learned. Compare actual accomplishments to the project goals in your proposal. The following goals are completed or partially fulfilled:

1. Conduct farmer demonstration meetings and field days (*On-going. Activities include planter clinics, field days, residue measuring project, conservation mobile unit modules, handouts etc.*)
2. Implement on-farm demonstrations of acceptable production and management innovations and practices (*Strip-till demonstration and planter clinic*)
3. Determine practical economics of pricing and procurement policy and management practices for farmers. (*Completed. Economics of Stover Removal handout created and prices updated for 2010.*)
4. Recruit and train additional key educators (*On-going. Coordinated listening sessions with Conservation District of Iowa's Soil and Water Commissioners. A workshop was held to provide training for Technical Service Providers (TSP's).*)
5. Educate and train key educators and TSPs in conservation planning and cellulosic production and management (*On-going. Listening session with Commissioners, TSP workshop and Economics of Stover handout*)
6. Educate 1,500 farmers in 15-20 counties on acceptable production and harvest strategies (*On-going. Residue Measuring Project; Residue Matters; Planter DVD; Conservation Station module; handouts and outreach materials*)
7. Milestones: 21 farmers recruited and educated on SCI, STIR and RUSLE2; 70 residue measuring sites; 3 field days and workshops with over 70 farmers, students and agency personnel attending; reached almost 5000 farmers, educators and agency personnel through Planter DVD; 19 TSP's trained; held listening

sessions with Soil and Water Commissioners; Residue Matters campaign; Economics of Stover handout.

Key Lesson Learned: Farmers and educators are interested in materials and data that can be directly tied to their scope of work or operation. The residue measuring project allowed us to give each cooperator their field specific data. Farmers greatly appreciated the residue measuring information and are looking forward to 2010 observational results. The Planter DVD has reached a broad audience and specifically has helped farmers who are trying to get back into farming or want to make alterations to their planter. The listening sessions held with Soil and Water Commissioners are still being analyzed but anticipate great ideas and comments as a result of the sessions.

C) Describe the work that you anticipate completing in the next six-month period:

1. Implement on-farm demonstrations of acceptable production and management innovations and practices (*summer field days*)
2. Educate and train key educators and TSPs in conservation planning and cellulosic production and management
3. Use the Conservation Station as a mobile outreach tool focusing on soil, water and residue management
4. Complete Residue Measuring Project. Take spring 2010 residue measurements, enter data into RUSLE2 and distribute results.
5. Analyze listening sessions conducted with Soil and Water Conservation Districts.

D) Provide the following in accordance with the Environmental Quality Incentives Program (EQIP) and CIG grant agreement provisions:

1. A listing of EQIP-eligible producers involved in the project, identified by name and social security number or taxpayer identification number;

Twenty-one farmers are participating in the residue measuring project and educational outreach. Honorariums for participants have not been issued. Participants will receive \$250 after 2010 spring residue measurements are collected.

2. The dollar amount of any direct or indirect payment made to each individual producer or entity for any structural, vegetative, or management practices. Both biannual and cumulative payment amounts must be submitted.

No direct payments for structural, vegetative or management practices will be issued. A \$250 honorarium will be given to each of the twenty-one farmers participating in the two year residue measuring project. Participants have set aside time to share their views on residue, allowed field operations and measurements to be recorded, attended field days and outreach activities. Payments will be made after spring 2010 residue measurements are completed.

April 1 – September 30, 2009

A) Summarize the work performed during the project period covered by this report:

The Iowa CIG project has hosted many field days and outreach activities in the past six months. Collaboration between CIG and Iowa Learning Farm (ILF) has allowed successful events, outreach, and educational tools to be developed. Planter clinics were held at two of Iowa's community colleges to demonstrate how to convert a conventional planter to a no-till planter. Education on conservation practices and residue removal was shared with farmers and students. Listening sessions were held at a Planter Clinic to allow farmers to converse about issues they've encountered when converting to no-till or strip-till and gave advice on how they overcame those issues. As a result, farmers requested a how-to planter video be developed so they can review information presented at the planter clinic at a later date. The video is almost finalized and will be distributed at CIG winter meetings and area conferences.

Seven summer field days were hosted to provide farmers with information regarding residue management, soil quality, conservation practices, economics of no-till and residue removal, utilization of cover crops, planter adjustments, strip-till equipment, and a soil pit was dug to show good soil structure and root development in a long term no-till field. Total attendance for planter clinics and summer field days totaled 583 farmers and agency personnel.

CIG and ILF have completed four handouts pertaining to Iowa watersheds, transition to no-till, water quality and conservation practices, and economics of stover removal. Handouts have been distributed at all CIG and ILF field days and events. Partial support was provided for a conservation mobile unit that is currently being designed to serve as a delivery mechanism for residue and conservation education. The mobile unit will travel to state and county fairs, outdoor classrooms, and many other statewide events.

Residue measuring sites were established and observational data collected. Twenty-one northern Iowa farmers are participating in the project, totaling 70 fields measured for residue cover percentages. Field scenarios ranged from no-till to conventional tillage, with and without residue removal. All data will be kept anonymous and shared with each farmer. Biofuel meetings were organized in conjunction with the Iowa Water Center. Industry and political representatives were present during four workshops involving 35 Iowa farmers that are interested in biomass production. Currently we are organizing November listening sessions with Conservation District of Iowa's Soil and Water commissioners. Sessions will focus on residue management, soil and water quality, and allow participants to share their experiences as commissioners.

Since the last CIG reporting period, side by side no-till and tillage plots have been eliminated. ILF has similar sites with five years of data collected and decided it would be best to focus CIG efforts on the residue measuring project and outreach activities.

B) Describe significant results, accomplishments, and lessons learned. Compare actual accomplishments to the project goals in your proposal. The following goals are completed or partially fulfilled:

8. Assess grower interest and baseline knowledge in cellulosic production and management (*Completed. Biofuel discussions were held with 35 farmers and 7 industry and political representatives*)
9. Assess and strengthen grower and industry shared goals for stewardship pricing and procurement (*Completed. Biofuel discussions were held with 35 farmers and 7 industry representatives*)
10. Conduct farmer demonstration meetings and field days (*On-going. Activities include planter clinics, field days, residue measuring project, conservation mobile unit, handouts etc.*)
11. Implement on-farm demonstrations of acceptable production and management innovations and practices (*Partially completed. Farmers recruited will attend an informational meeting this winter which will also be open to the public and TSP's*)
12. Determine practical economics of pricing and procurement policy and management practices for farmers. (*Partially completed. Economics of Stover Removal handout created.*)
13. Recruit and train additional key educators (*Currently recruiting Conservation District of Iowa's Soil and Water Commissioners to participate in listening sessions hosted around the state.*)
14. Milestones: 21 farmers recruited; 70 residue measuring sites; 9 field days and workshops with 583 farmers and agency personnel attending.

Key Lesson Learned: The first year of the residue measuring project based on one cropping season revealed that 40% (28 of 70) of fields measured had less than 30% residue cover. Many farmers are harvesting residue in combination with intensive tillage. Over 20% (15 of 70) of fields had a negative soil conditioning index predicting that soil quality is not improving with the current management system. Almost 20% (13 of 70) of fields had a RUSLE2 soil loss calculation of 5 tons per acre or more due to current management practices.

Biofuel discussions held in Marshalltown, IA and Emmetsburg, IA indicated that many farmers need additional information regarding biofuel production. Farmers are unclear of what will be asked of them by industry, preferred biofuel source and collection and transportation logistics. Participating farmers said they would be hesitant to buy additional machinery to harvest biomass.

C) Describe the work that you anticipate completing in the next six-month period:

6. Assess Technical Service providers' and key educators' interest and baseline knowledge in cellulosic production and management
7. Recruit and train Technical Service Providers
8. Implement on-farm demonstrations of acceptable production and management innovations and practices
9. Implement on-farm demonstrations of acceptable production and management innovations and practices
10. Educate and train key educators and TSPs in conservation planning and cellulosic production and management
11. Recruit and train additional key educators

D) Provide the following in accordance with the Environmental Quality Incentives Program (EQIP) and CIG grant agreement provisions:

1. A listing of EQIP-eligible producers involved in the project, identified by name and social security number or taxpayer identification number;

Twenty-one farmers are participating in the residue measuring project and educational outreach. Honorariums for participants have not been issued. Participants will receive \$250 after 2010 spring residue measurements are collected.

2. The dollar amount of any direct or indirect payment made to each individual producer or entity for any structural, vegetative, or management practices. Both biannual and cumulative payment amounts must be submitted.

No direct payments for structural, vegetative or management practices will be issued. A \$250 honorarium will be given to each of the twenty-one farmers participating in the two year residue measuring project. Participants have set aside time to share their views on residue, allowed field operations and measurements to be recorded, attended field days and outreach activities.



October 1, 2008 – March 31, 2009

A) Summarize the work performed during the project period covered by this report:

Erin Harpenau, Farm Conservation Liaison, took part in late fall field days that promoted strip-till and good residue management. She attended POET's Project LIBERTY field day, Iowa Renewable Fuels Conference, and various winter conferences where she spoke with others about the importance of responsible residue management. She has hosted a Planter Clinic at Iowa Lakes Community College where 75 farmers and students attended to learn how to convert a conventional planter to a no-till planter. The clinic encouraged farmers to increase the amount of residue cover in their fields. A spring observational study is planned and will be working with thirty farmers in Northern Iowa. Through this observational study it will allow us to document residue cover with various field operations and residue removal. Area farmers are being contacted. Two demonstration sites are being planned to compare no-till and conventional tillage in Northwest Iowa. Collaboration has taken place with the Economics and Agronomy departments at Iowa State in efforts to design a fact sheet on the economics of stover removal. A fact sheet for residue management is also being developed.

B) Describe significant results, accomplishments, and lessons learned. Compare actual accomplishments to the project goals in your proposal:

Project goals completed include: 1) Distributed a CD produced by the Iowa Learning Farm to educate farmers, industry, and urban folks; 2) Began farmer recruitment for a residue measuring project in three locations spanning across Northern Iowa with one in the area of an ethanol plant (POET Energy) that has plans to begin field-scale procurement of corn cob biomass from local farmers; 3) Determined planned field demonstrations, planter clinics and residue measuring locations; 4) Conducted one farmer planter clinic at Iowa Lakes Community College where 75 students and local farmers attended. We will receive evaluation results in the next month; 5) Developing two on-farm demonstrations comparing no-till with a tillage system.

C) Describe the work that you anticipate completing in the next six-month period:

Erin Harpenau will continue scheduling outreach activities that will better inform farmers of good residue management. A field day is being scheduled with an Iowa Learning Farm Cooperator that has an on-farm demonstration with and without residue removal. Another planter clinic is scheduled at Kirkwood Community College in Cedar Rapids. This spring she will be collecting observational data regarding residue cover in fields of various tillage operations and fields with and without residue removed. This residue measuring project will also continue through the fall and spring of 2010. A photo gallery of residue percentages will also be collected for corn and soybean fields. Two fact sheets regarding residue management and economics of stover removal will be completed by

this summer. Education regarding soil loss, economics and nutrient value of residue will be shared with targeted areas of Iowa.