Iowa Learning Farm Project
07IFLM001

Integrated Farm and Livestock Management
Demonstration Program
Crop Year 2006 (April 1, 2006 thru March 30, 2007)

Report submitted by Jerry DeWitt, (515) 294-7836, jdewitt@iastate.edu

As we enter the Iowa Learning Farm (ILF) cropping year 3 in 2007, we come with renewed energy, excitement and a commitment to increased visibility and impacts across Iowa. Our last year has been one of many changes and transitions; several key individuals have moved to other opportunities (Mark Licht and Beth Larabee), and we have added a host of new, talented staff for the ILF team as we have reconfigured: Carol Brown (Communication Specialist), Jon Lundvall (Field Coordinator), Jamie Benning (Research Associate), and Ranvir Singh (Post Doc Research Associate). Last we have brought in the Leopold Center for Sustainable Agriculture to provide project coordination and support. Jerry DeWitt, Center Director, has been designated as spokesperson for the ILF project. Our 2007 season thus far has resulted in 5 regional cooperator meetings, a statewide planning session, new field days set and a schedule filling rapidly for the rainfall simulator demonstrations across Iowa. In addition we can expect new ILF targeted publications, more data on the ILF homepage, and a Stakeholders Meeting in August. These are just a few of the activities planned for the 2007 ILF year.

Crop Year 2006 Overview

Crop Year 2006 marked a year of transition for the Iowa Learning Farm (ILF) project. Project social science/evaluation principal investigator (PI) Steve Padgitt retired from the Iowa State faculty and ILF staff members Licht and Larabee moved on to new employment opportunities. In response, the ILF management team and steering committee evaluated overall progress of ILF and made adjustments where needed. Paul Lasley assumed the PI role in the social science/evaluation component of ILF in July, and ISU Agronomy Chair Kendall Lamkey joined the ILF management team in August.

Rather than rush to fill the positions vacated by Licht and Larabee, the ILF management team met several times in August and September with members of the ILF steering committee to assess project strengths and suggest changes to best meet overall project goals. Jerry DeWitt, Director of the Leopold Center for Sustainable Agriculture, was asked to join the project as overall coordinator and spokesperson. The Leopold Center became a new partner in the project. DeWitt led the re-organization process, building on the strength of ILF demonstrations and multi-disciplinary approach and adding a strong communications and outreach program for crop year 2007. DeWitt institutionalized monthly team meetings to better facilitate project efforts. Adjustments were also made to ILF farmer cooperator on-farm activities (see cooperator list in agronomy section). An ILF communications team was organized, including Laura Miller (Leopold Center), Jean McGuire (ISUE), ILF communications specialist, Comito and DeWitt. This group met monthly beginning in November. Under DeWitt's leadership, ILF was involved in many statewide events and our statewide promotions increased (see ILF 4th quarter report and DM Register article).

During this time, ILF received funding to launch a water quality component based on modeling and land management practices. Helmers and Hanna spent the fourth quarter developing the details of the water quality component that begins funding April 1, 2007. Dr. Ranvir Singh was hired to collaborate with Helmers on inserting ILF farmer cooperators' wisdom into water quality models to quantify sediment and nutrient loadings at field scale. The modeling work will be conducted in each of the five soil regions.

Iowa's Nonpoint Source Management Program Document recognizes that Iowa's efforts to address nonpoint source issues will require a broad spectrum of partnerships, resource interests, and areas of expertise. The changes implemented into the ILF project this year embody that concept. Since environmental and water quality issues cut across many disciplines, it is important to have a broad partnership and an integrated team approach to addressing the concerns. The ILF project was established as a core partnership; we seek to expand this partnership through a statewide advisory group by inviting statewide stakeholders to an event in early August 2007. The ILF Stakeholder Event will be held on the Smeltzer Farm, an ILF demonstration site in Webster County. We will demonstrate to potential stakeholders the importance of ILF and ask for their support in facilitating and promoting the success of the project.

The new project team brings together various resource interests and areas of expertise beyond the initial vision of ILF. The addition of the Leopold Center as a partner will open new audiences and ideas to ILF. We feel this newly refined and expanded multidisciplinary team can effectively develop and deliver educational material on the impacts of in-field management on water quality.

Project Activities

We are presently in year three of a five-year project with a goal of continuing the project through all five years. Years one and two were spent establishing demonstrations on 31 cooperator farms, building local networks of support, and working with ILF partners to promote conservation practices and ethics. During crop year 2006 (year two of project) researchers and ISU Extension personnel participating in the ILF project generated scientific information directly applicable to the representative producers' local fields (see attached data from individual components or ILF website http://www.extension.iastate.edu/ilf/) and participated with several events throughout the state (please see ILF quarterly reports for detail). We saw a significant increase in the attendance at ILF sponsored field days. Attendance ranged from 65 people at the Smeltzer farm field day in late June to 90 people at the Manthe farm field day in early September.

During the fourth quarter of 2006, Helmers and Hanna (along with the ILF communication team) focused on improving the Conservation Systems Portable Rainfall Simulator (CSPRS). CSPRS is an effective tool to educate the public about potential water quality impacts of agricultural practices. An on-line reservation system was developed and is now available at ILF website http://www.extension.iastate.edu/ilf. Additional signs were made for the CSPRS that educate through NRCS photographs and

ILF cooperator material more specifically issues concerning land management choices, watersheds and conservation.

During crop year 2006, success stories began to emerge that will be used by the overall ILF project to publicize producers' efforts to improve water quality. These success stories will be used as a demonstration for other producers. These stories will be highlighted on ILF cooperator web-profiles and in printed material. For example, Comito, with the help of Jean McGuire and Jon Anderson (ISUE), completed a promotional video that features three ILF farmer cooperators and advocates for the Iowa Learning Farms approach. This DVD premiered at the Iowa Soil and Water Conservation District Commissioners Conference in November and will be used at the stakeholder event. The video can be viewed at http://www.extension.iastate.edu/ilf/. Another example is when ILF farmer cooperator Bruce Manthe told local stakeholders that his experience in ILF showed him that an increase in conservation tillage practices was good for the land and financially beneficial and that he planned to continue using these practices whether he was involved with ILF or not. In upcoming years, we plan to facilitate many opportunities for our farmer cooperators either in person, like Manthe, or through media resources, to share their stories with other farmers and the general public in order to promote the adoption of good conservation in-field management.

During year three (crop year 2007) ILF will expand communications efforts for greater outreach and education, promotion of ILF farmer-cooperators as spokespeople, and building a statewide stakeholder network from various agribusinesses, organizations and agencies. Evaluation of this project is on-going, offering the ILF team and partners insights into the effectiveness of their current education programs and outreach while aiding in development of more effective conservation education and outreach activities (see event evaluation form and participant comment form in evaluation section).

ILF Individual Component Comprehensive Reports

The overall goal of the project is to increase the adoption of residue management practices and conservation practices that are expected to improve water quality and reduce nonpoint source pollution in the state of Iowa. In addition, we have a goal of fostering "a culture of conservation" among all Iowans. This type of program is as important now as ever due to increasing demands for agricultural products to supply feed, food, fiber, and fuel. The project brings together agronomists, economists, social scientists, agricultural engineers and farmers to educate stakeholders in an integrated fashion about the impacts of in-field management practices. We believe having this integrated team is important since producers and stakeholders need reliable, consistent information about all aspects of in-field management to make decisions on their land. As part of this project we are working with cooperators throughout the state of Iowa. To achieve the overall goal we have five components that work in an integrated fashion in this project. The five components are:

1. Communications and Field Coordination
2. Water Quality
3. Agronomic
4. Economic
5. Social Science/Evaluation

Here are the year-end comprehensive reports for each of the 5 components:

Communications and Field Coordinator Component
Jerry DeWitt, Carol Brown & John Lundvall

What makes the Iowa Learning Farm unique is that it brings together various academic disciplines, state agencies, and farmers--integrating their knowledge and wisdom into a statewide communications strategy to distribute information to a broad audience. The ILF team's commitment to expanded outreach and education efforts includes hiring of a full time communications specialist, Carol Brown, on May 1, 2007. The communications specialist, along with John Lundvall, the new ILF field coordinator, will be responsible for increasing the project's visibility. Through monthly ILF team meetings, quarterly ILF steering committee meetings and personal contact, they will work closely with the project team to develop integrated outreach and education programming and materials.

By June 2007, a comprehensive communication plan will be in place focused on meeting the overall goals of the project. We will continue all previous ILF activities, including field days, distribution of a quarterly newsletter, website updates, and conservation minutes. However, outreach and education will be greatly expanded to include, but not be limited to, monthly press releases, increased visibility in local press and radio, and curriculum packages for local educators.

During the year, monthly activities will be scheduled throughout the state that are either hosted by ILF or sponsored by the project. The field coordinator will have specific responsibilities for increasing the visibility of the project throughout the state and in particular working with the cooperators to develop their ability to become spokespeople in their local communities about the importance of conservation. The communications specialist and field coordinator, in consultation with the project team, will lead the development of educational and case study material that can be used locally by the cooperators.

Over the past two and half years, we have established good working relationships with the local NRCS and DSC staff and Iowa's 100 Soil and Water Conservation Districts. We hope to build on these local networks as we expand our outreach and education. The communications specialist and the field coordinator will work to integrate information from the four components to develop educational and outreach material specifically targeted to various groups and stakeholders. First and foremost this information will be packaged in a way that will be useful to local stakeholders, including our farmer cooperators, local NRCS and DNR staff, Soil and Water District commissioners, and ISU Extension field crop specialists. In addition, educational materials will be developed for educators throughout the state.

Since joining the ILF team, Jerry DeWitt has participated in a number of media interviews where he discussed the ILF along with issues concerning the Leopold Center. Here is a list of the interviews since January 2007:

- 3-8, Farm News, Darcy Maulsy (freelance writer), feature for spring farm edition
- 3-2, AgriEnergy News of Princeton, Illinois, Jerry Carlson, editor; general sustainable ag topics
- 2-20, KRUL Radio, Fairfield, Lonnie Gamble, general sustainable ag

- 2-6, freelance writer Lura Roti for River Coops, org, Iowa Learning Farm
- 1-22, Iowa Farmer Today, Hannah Fletcher, LC/ILF appointments
- 1-17, WOI Radio, Doug Cooper, LC/ILF appointments
- 1-16, Ames Tribune, Bill Dillon, LC/ILF appointments (story ran in April)
- 1-16, Des Moines Register, Farm editor Jerry Perkins, LC/ILF appointments (printed article is attached at the end of report).

DeWitt also did one two in-depth interviews with Doug Cooper about the ILF that were mailed to about 65 Iowa radio stations.

Water Quality Component

Matt Helmers & Mark Hanna, Department of Agricultural and Biosystems Engineering

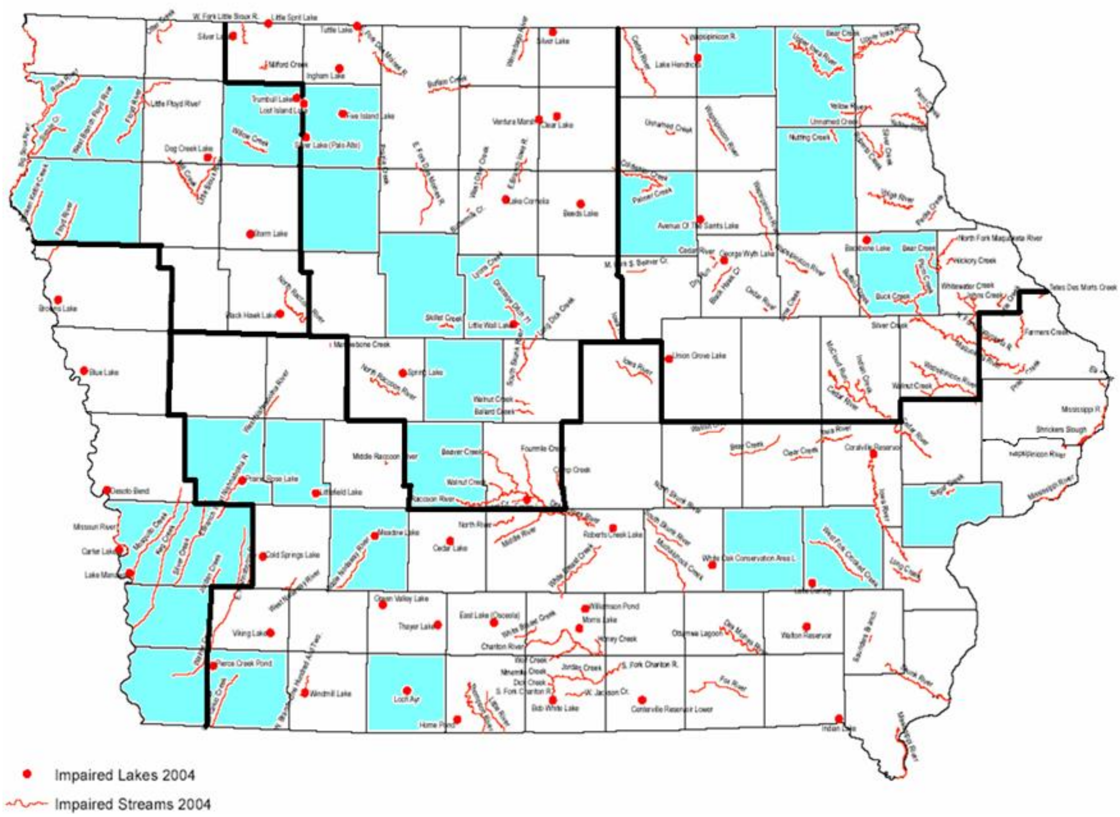
The report summarizes the activities related to the water quality component of Iowa Learning Farm project during the time period from April 1, 2006 to March 31, 2007. During the majority of this time the main activities were related to supporting the other components of the project at various events throughout the state through presentations on the impacts of conservation practices on water quality. During early Spring 2007 we began the planning process for expanding the water quality component of the Iowa Learning Farm project. The water quality component has a goal of engaging researchers, extensionists, and local producers and watershed groups into an interactive knowledge sharing platform to identify, implement and educate about the benefits of in-field and edge of field management practices in reducing sediment and nutrient loadings to Iowa's agricultural lands.

The project management identified and hired a Postdoctoral Research Associate to help with the hydrologic/water quality modeling of various in-field and edge of field management practices in close consultation with local producers. The researchers have identified the Water Erosion Prediction Project (WEPP) model to quantity the impact of field management on surface runoff and soil erosion. WEPP will initially be evaluated by comparing the simulations with observed datasets (1976-80) from two small watersheds, and would be further evaluated for a third watershed located in Four Mile Creek, IA.

A range of management scenarios would be simulated using WEPP. The project team will develop the scenarios based on their experience and consultation with the ILF cooperators. The ILF cooperators will be important in this process to ensure the scenarios are reasonable and reflect the producers view. These scenarios would include various tillage practices, biomass removal rate, buffer systems, terraces, and various cropping practices including cover crops. WEPP projects would be established for at least one local producer's farm from each of the five landform region of the state. The selection of the local producers' farm would be based on the farmer's willingness to participate, their soil is representative of the soil in that region, and the farmer has some potential for treatment application.

As we work through this component we will work to ensure that we insert the local producer's wisdom into hydrologic/water quality models to generate the scientific information directly applicable to the representative producer's local farms. This information would then be used in local and regional meetings to educate the producers, stakeholders and managers about the potential impacts that in-field and edge of field management may have on downstream water quality. These various WEPP projects will serve as case-studies that can be utilized in the educational and communications activities of the project.

The project team also would use the Conservation Systems Portable Rainfall Simulator (CSPRS) trailer in various public events during the summer of 2007 to demonstrate the impacts of the various in-field management scenarios on sediment and nutrient loadings from agricultural lands.



Attachment 1: A map of Iowa's 303(d) impaired water bodies. ILF Cooperating Producers are Located in Shaded Counties, and Five Regions of the State are Outlined in Bold

Agronomic Report/Field Demonmstrations-2006

Mahdi Al-Kaisi (Associate Professor) & Jamie Benning (Research Associate)
Agronomy Department

As part of the Iowa Learning Farm, on-farm demonstrations have been established to compare the effectiveness of conservation practices to conventional ones in improving soil productivity and soil quality indices. The on-farm demonstrations also serve as teaching tools to have farmers engaged in practicing and adopting such measures.

Demonstration site

Three to ten producers in each of five geographic areas, totaling 31 producers statewide, were identified to establish on-farm demonstrations of different conservation tillage and cropping systems (figure 1). On these sites, NRCS offices are working with cooperators on the development and implementation of conservation plans addressing resource concerns identified in the NRCS Field Office Technical Guide Quality Criteria. The implemented system will be compared to conventional practices either on the same field or on another adjacent field of the same soil association in their region. Sites were selected based on their suitability to model and monitor the outcomes of conservation compared to conventional practices effects on soil and water quality.

Data collection parameters

Field measurements were determined to evaluate conservation practices utilizing a limited set of indicators for soil quality, water quality, and agronomic productivity. The indicators are utilized to evaluate the performance of conservation practices compared to conventional ones. The following data was collected from each site in each region:

- <u>Soil quality parameters</u>: Soil samples were collected to evaluate bulk density, total soil carbon, total soil nitrogen, and soil pH from all on-farm demonstration sites. Water infiltrations, soil aggregate stability, and soil compaction were determined on a subset of the on-farm demonstrations sites.
- <u>Agronomic measurements</u>: Seeding rate, surface residue cover estimation, seedling emergence, final plant population, and grain yield were collected from all on-farm demonstration sites.
- <u>Nitrogen utilization</u>: soil samples were collected to determine late spring soil nitrate concentration and corn fall stalk samples were collected to determine stalk nitrate-N concentration at physiological maturity (Black Layer) for all on-farm demonstration sites. Grain samples were collected to determine nitrogen and phosphorus uptake from demonstration sites

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2006 Results and Discussion

Results from each individual on-farm demonstration within each region are presented in Tables 1 to 5 and summery of all 31 sites presented in Appendix A.
<u>Residue Cover</u>: Average residue cover across the state ranged from 6% to 100% depending on the tillage and cropping system. Residue cover for no-tillage averaged

68% compared to 48% and 44% for minimum and conventional tillage, respectively. Residue cover is highly related to tillage intensities and cropping system.

Final Plant Population: The final plant populations across the state averaged 27,787 and 124,267 plants per acre for corn and soybean, respectively. Differences due to tillage, cropping system, or region were not significant.

Bulk Density: The average bulk density for each region ranged from 1.05 to 1.23 g/cm^3. Variability due to previous management practices is evident. Differences in bulk density due to different soil formation were noticeable between different regions. Generally, long-term NT has lower bulk density compared to other conservation or conventional tillage systems.

Soil pH: The average soil pH across the state was 6.4. The Loess Hills region had the lowest pH (6.1) compared to the other regions, while the Southern Iowa Drift Plain had the highest pH (6.5).

Late Spring Soil Nitrate: The average late spring soil nitrate (LSNT) across the state was 28 ppm. The average soil NO3-N was 24, 19, 29, 20, and 48 for region 1, 2, 3, 4, and 5 respectively. In region 3, the average LSNT for no-till treatments was 22 ppm, compared to 34 ppm for the minimum tillage treatments. The variability in late spring soil nitrate-N concentrations between different sites and regions reflects the differences in soil conditions, tillage systems, soil drainage, climate conditions, and management practices.

Fall Stalk Nitrate: The average fall stalk nitrate across the state was 1,844 ppm that is in the optimal category. Fall stalk nitrate values between 750-2000 ppm are considered optimum; above 2000 ppm would indicate luxury consumption of nitrogen by the plant. The variability in fall stalk nitrate-N concentrations between different sites and regions reflects the differences in soil conditions, soil drainage, tillage systems, climate conditions, and management practices. The average fall stalk NO3-N concentration was 1383, 1841, 3,098, and 2,896, for region 1, 2, 3, and 4, respectively.

Yield: The average yield across the state was 178 and 54 bu/acre for corn and soybean, respectively, and 6.25 tons/acre for corn silage. The average yield for corn was 155, 171, 185, 191, and 188 for regions 1, 2 3, 4, and 5, respectively. Averages yields for soybeans were 60, 55, 50, 49, and 53 for regions 1, 2, 3, 4, and 5 respectively. Yields varied due to differences in climate, tillage, soil properties, and management practices.

Soil Organic Matter: Total soil c and N is not available for 2006 season at this time. The soil samples will be processed and analysis will be conducted at a later date.

2005 Results and Discussion

The soil organic matter results from 2005 are discussed below as a baseline and are listed in tables 1 to 5 and Appendix A of 2006.

Organic Matter (2005): The average soil organic matter across the state was 4.2%. Organic matter was highest in the Des Moines Lobe (5.1%) and lowest in the Southern Iowa Drift Plain and Loess Hills (3.5% and 3.0%, respectively).

Carbon to Nitrogen Ratio (2005): The average soil carbon to nitrogen ratio across the state was 12.1. There are no evident differences regionally or due to tillage or cropping system. A typical agricultural soil has a carbon to nitrogen ratio of approximately 10:1. Materials that have ratio less than 20:1 favor nitrogen mineralization. A ratio of greater than 30:1 favors nitrogen immobilization. In the 20:1 to 30:1 range mineralization and immobilization are in balance for no net change.

Summary

The 2005 and 2006 field data showed soil quality improvements as a result of no-tillage and minimum tillage systems. Differences in tillage treatment performance can be explained by the variability in past management practices, climate, soil conditions, and current management. As the treatments become more established over the upcoming years, indicators of soil quality are likely to improve.

Cooperators' Field Demonstration Descriptions

In the 2007 crop year, two cooperators have made changes to their demonstration sites. In region 1, Robert Pridie has added a comparison of a grass legume mix with no manure added to a grass legume mix with manure added. In region 4, Mike Deahr has removed the addition of potassium to his treatments and will be comparing manure application, manure application plus commercial nitrogen, and manure application plus an increased rate of commercial nitrogen. Due to potential changes with his farm, Lynn Gronborg has decided not to continue with the project. All other cooperators will continue their established treatments for their demonstration plots as in 2006.

Region	Cooperator	Treatments
1	Jerry Crew	No-tillage vs. strip-tillage.
	Corn Growers	Strip tillage vs. minimum tillage vs. conventional tillage.
	Bruce Manthe	No-tillage vs. field cultivation
	Nate Ronsiek	Conventional tillage vs. no-tillage
	Robert Pridie	Grass legume mix vs. grass legume mix with fall manure application. This is a new set of treatments this year comparing the response of a grass-legume mix to the application of manure.
2	Dan Eklund	No-tillage vs. minimum tillage vs. conventional tillage
	Brian Hoffman	No-tillage vs. chisel plow
	Richard Mason	No-tillage vs. chisel plow
	Rod Pierce	Field cultivation vs. rotary harrow vs. no-tillage
	Smeltzer Trust	No-tillage with row cleaners vs. chisel plow

	Joel Zwiefel	120 lbs. N vs. 160 lbs. N
	Joel Thomas	Strip-tillage vs. chisel plow vs. no-tillage
3	Rick Juchems	Cover crop vs. no cover crop following silage
	Paul Hunter	No-tillage vs. chisel plow
	Collin Jensen	No-tillage vs. in-line rip
	Frank Moore	No-tillage vs. ridge tillage
	Max Schmidt	Baled vs. not baled corn stalks
	Tom Vaske	Strip-tillage vs. conventional with NH3 vs. conventional tillage with manure
4	Bill Buman	No-tillage vs. no-tillage w/ 25 lbs additional N
	Randy Caviness	No-tillage, disk, vs. no-tillage w/ cover crops
	Mike Deahr	Manure vs. manure + additional N vs. manure + increased additional N. In previous years, potassium was added to two treatments. The treatments will now compare manure application with additional commercial. fertilizer at two different rates.
	John Kielkopf	No-tillage vs. field cultivation
	Doug Nolte	No-tillage vs. chisel plow
	Rob Stout	No-tillage w/ and w/o starter fertilizer
	Scott Swanson	C-s rotation vs. c-s-o-a-a rotation
	Barbara Johnson	Cow crop, pasture, vs. hayland
	David Jensen (AMVC)	Manure disc incorporated, injected type 1, vs. injected type 2
	Doug Campbell	Warm season planting date 1 and 2 vs corn / soybean food plots
5	Lynn Gronborg	No-tillage vs. no-tillage with row cleaners vs. field cultivation
	Bret Seipold	Injected vs. broadcast N
	Glen Stenzel	No-tillage with and without starter fertilizer

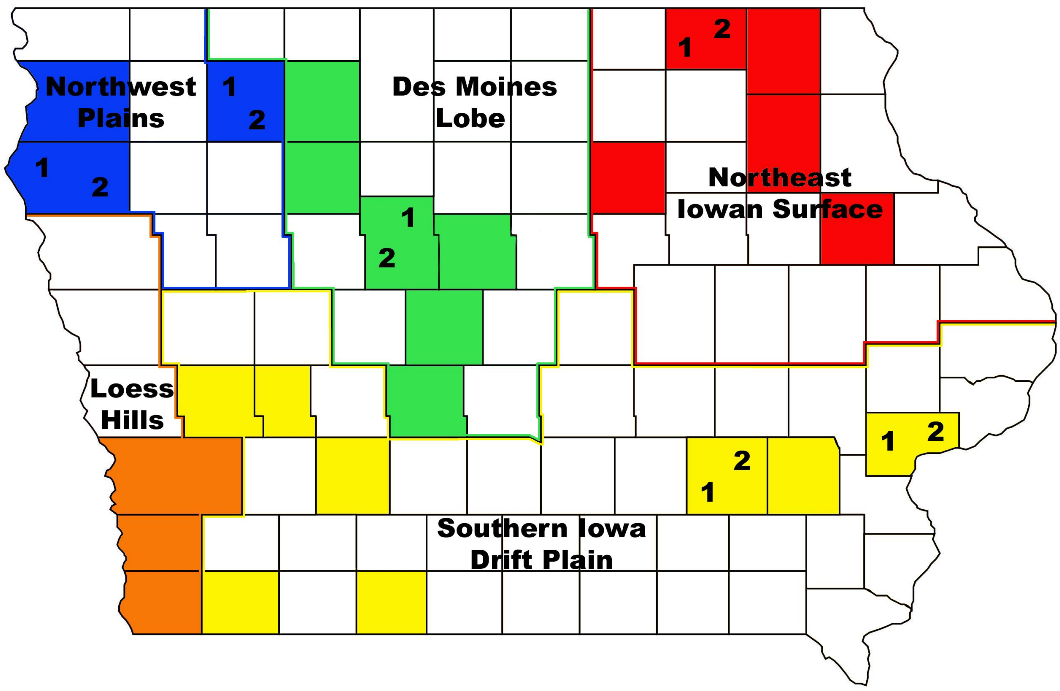

Figure 1. Iowa Learning Farm on-farm research and demonstration site locations.

Table 1. Northwest Iowa Plains (region 1) comparisons of on-farm demonstration results. Yields are for corn grain unless noted.

Treatment	Description	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter†	C:N Ratio†	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
		%	plants / acre	g / cm^3	%			ppm	ppm	bu / acre
Tillage	No-tillage corn	60	25,583	1.30	--	--	5.9	13	1109	154
	Strip-tillage corn	49	28,000	1.49	--	--	6.5	9	431	170
	Minimum tillage corn	15	24,000	1.15	--	--	5.2	16	2883	140
	No-tillage soybeans	85	95,209	1.34	3.4	13.1	7.1	--	--	58
	Minimum tillage soybeans	56	114,333	1.19	3.5	14.4	7.6	--	--	59
	Conventional tillage soybeans	56	93,567	1.18	3.3	11.7	6.4	--	--	63
Cropping System	Silage without cover crop	6	28,333	1.05	--	--	6.8	44	--	NA‡
	Silage with cover crop	44	26,833	0.99	--	--	6.4	48	--	NA‡

†Data from the 2005 season.

‡ No yield data due to severe lodging.

Table 2. Des Moines Lobe (region 2) comparisons of on-farm demonstration results. Yields are for corn grain unless noted.

Treatment	Description	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter†	C:N Ratio†	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
		%	plants / acre	g / cm^3	%			ppm	ppm	bu / acre
Tillage	No-tillage corn	61	30,542	1.15	--	--	6.5	23	1200	171
	Strip-tillage corn	34	31,000	1.28	5.0	12.3	6.5	39	3913	196
	Minimum tillage corn	53	30,250	1.12	--	--	6.5	16	1333	190
	Conventional tillage corn	43	20,389	1.22	--	--	6.3	15	1717	169
	No-tillage soybeans	78	74,778	1.11	5.1	13.1	6.1	--	--	48
	Minimum tillage soybeans	51	144,000	0.89	5.2	13.6	6.1	--	--	56
	Conventional tillage soybeans	62	84,389	1.08	4.5	12.2	6.1	--	--	50
Nutrient Management	120 lb N side-dressed corn	74	32,166	1.56	5.6	14.1	6.2	9	<64	135
	160 lb N side-dressed corn	68	31,000	1.48	5.6	13.5	6.1	6	217	156

†Data from the 2005 season.

Table 3. Northeast Iowan Surface (region 3) comparisons of on-farm demonstration results. Yields are for corn grain unless noted.

Treatment	Description	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter†	C:N Ratio†	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
		%	plants / acre	g / cm^3	%			ppm	ppm	bu / acre
Tillage	No-tillage corn	59	30,890	1.13	--	--	6.4	21	1813	199
	Strip-tillage corn	69	31,166	1.25	--	--	6.7	18	8526	180
	Minimum tillage corn	70	31,000	1.16	--	--	6.1	18	2417	196
	Conventional tillage corn	45	27,973	1.18	--	--	6.6	29	683	131
	No-tillage soybeans	80	92,333	1.11	4.0	13.3	6.5	--	--	42
	Minimum tillage soybeans	73	119,666	1.24	3.1	13.5	6.5	--	--	42
	Conventional tillage soybeans	44	157,750	1.19	--	--	6.7	--	--	61
Cropping System	Baled corn stalks corn	32	30,666	1.12	4.1	12.1	7.0	61	4366	159
	Non-baled corn stalks corn	49	31,333	1.12	4.4	12.6	7.0	40	3136	161
	Chisel plow with NH_3 corn	43	29,166	1.05	4.9	11.3	6.5	49	4300	161
	Disk incorporated manure N corn	55	29,333		6.4	11.5	6.3	46	7807	184
	Cover crop following corn silage corn	8	30,833	1.12	--	--	6.3	21	99	6‡
	No cover crop following corn silage corn	10	29,833	1.19	--	--	6.1	38	175	6‡
	Cover crop following corn silage soybean	97	166,700	1.19	4.4	10.1	6.5	--	--	58
	No cover crop following corn silage soybean	13	207,000	1.20	4.2	10.9	5.9	--	--	59

†Data from the 2005 season.

‡Tons/acre

Table 4. Southern Iowa Drift Plain (region 4) comparisons of on-farm demonstration results. Yields are for corn grain unless noted.

Treatment	Description	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter†	C:N Ratio†	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
		%	plants / acre	g / cm^3	%			ppm	ppm	bu / acre
Tillage	No-tillage corn	--	20,333	1.16	--	--	6.8	--	--	172
	No-tillage soybean	73	115,666	1.06	3.2	11.0	6.7	--	--	48
	Minimum tillage soybeans	33	111,667	1.00	3.0	10.8	6.7	--	--	47
	Conventional tillage soybeans	18	98,333	0.94			6.5	--	--	56
Cropping System	No- till w/cover crop soybeans	90	116,667	1.13	--	--	6.5	--	--	52
	Long term rotation corn	58	26,333	0.92	3.8	11.7	6.7	16	4	151
	Alfalfa	100		1.13	3.7	11.0	6.8	--	--	3‡
	Pasture	100		1.50	3.6	10.4	6.2	--	--	1‡
Nutrient Management	Disc incorporated manure corn	61	24,166	1.21	--	--	6.4	22	5043	242
	Injected manure (1) corn	57	24,000	1.10	--	--	6.2	17	4003	240
	Injected manure (2) corn	64	24,166	1.26	--	--	5.4	29	6940	238
	Manure + 0 N corn	40	27,000	0.94	--	--	7.6	18	2106	197
	Manure + 40 N corn	42	26,166	0.93	--	--	7.6	15	2076	189
	Manure + 60 N corn	39	26,333	0.93	--	--	7.7	16	2132	191

No-till N-35 corn	58	30,000	1.00	--	--	6.0	23	329	163
No-till N-80 corn	53	30,500	1.07	--	--	6.1	15	1168	195
No-till N-143 corn	59	31,000	1.09	--	--	6.5	19	2417	203
No starter fertilizer corn	72	31,333	0.94	--	--	6.7	17	501	218
Starter fertilizer corn	73	31,167	0.99	--	--	6.5	22	365	220

†Data from the 2005 season.

‡Tons/acre

Table 5. Loess Hills (region 5) comparisons of on-farm demonstration results.

Treatment	Description	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter†	C:N Ratio†	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
		%	plants / acre	g / cm^3	%			ppm	ppm	bu / acre
Tillage	No-tillage soybeans	56	125,666	1.02	3.1	9.5	6.1	--	--	56
	No-tillage w/row cleaners soybeans	62	116,333	1.18	2.6	10.0	6.1	--	--	53
	Minimum Tillage Soybeans	40	122,500	1.26	3.4	11.0	6.2	--	--	54
Nutrient Management	Injected N corn	42	24,833	1.04	--	--	5.8	53	7350	191
	Broadcast N corn	40	25,667	1.09	--	--	6.1	43	4067	186
	No-tillage w/starter soybeans	61	142,666	1.12	2.9	9.8	6.2	--	--	47

†Data from the 2005 season.

Appendix A. Data collection results for all on-farm demonstrations. Yields are for corn grain unless noted.

Region	County	Comparison	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter†	C:N Ratio†	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
			%	plants / acre	g / cm^3	%			ppm	ppm	bu / acre
1	Clay	No-tillage corn	64	26,833	1.45	3.4	13.3	6.6	9	415.3	168
		Strip-tillage corn	49	28,000	1.49	3.5	14.4	6.5	9	430.6	170
1	Clay	No-tillage soybeans	79	75,084	1.50	--	--	6.5	--	--	57
		Deep tillage soybeans	57	92,592	1.17	--	--	6.6	--	--	63
		Conventional tillage soybeans	54	94,541	1.18	--	--	6.2	--	--	63
1	Plymouth- 1	No-tillage soybeans	91	115,333	1.17	3.4	12.8	7.7	--	--	58
		Disk- 1 pass soybeans	56	114,333	1.19	3.3	11.7	7.6	--	--	59
1	Plymouth- 2	Silage without cover crop	6	28,333	1.05	--	--	6.8	44	--	NA
		Silage with cover crop	44	26,833	0.99	--	--	6.4	48	--	NA
1	Sioux	No-tillage corn	55	24,333	1.14	--	--	5.2	17	1803	141
		Disk- 1 pass corn	15	24,000	1.15	--	--	5.2	16	2883	140
2	Boone	No-tillage corn	63	30,833	1.22	--	--	6.8	10	1409	187
		Rotary harrow corn	61	29,833	1.21	--	--	7.1	7	1613	194
		Field cultivate corn	27	31,333	1.20	--	--	6.4	8	2173	192
2	Dallas	No-tillage corn	34	30,833	1.31	--	--	6.4	43	1265	185
		Strip-tillage corn	34	31,000	1.28	4.4	12.3	6.5	39	3913	196

		Chisel plow corn	28	29,833	1.33	3.8	11.7	6.5	27	2860	194
2	Hamilton	No-tillage corn	57	32,000	0.98	5.2	13.6	6.6	30	1451	185
		Cultivate- 1 pass corn	46	30,666	1.02	5.1	14.2	5.9	25	1052	185
2	Palo Alto	120 lb N side-dressed corn	74	32,166	1.56	5.6	14.1	6.2	9	<64	135
		160 lb N side-dressed corn	68	31,000	1.48	5.6	13.5	6.1	6	217	156
2	Pocahontas	No-tillage soybeans	79	100,000	1.34	4.7	12.3	6.1	--	--	52
		Deep tillage soybeans	72	112,500	1.25	5.1	12.6	5.9	--	--	54
2	Webster	No-tillage soybeans	83	124,333	0.94	5.1	13.1	5.9	--	--	47
		Disk soybeans	51	144,000	0.89	5.1	13.7	6.1	--	--	56
		Chisel Disk Rip soybeans	62	140,666	0.91	5.4	13.5	5.4	--	--	54

Region	County	Comparison	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter†	C:N Ratio†	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
			%	plants / acre	g / cm^3	%			ppm	ppm	bu / acre
2	Webster- 2	No-tillage corn	91	28,500	1.09	--	--	6.0	11	675	126
		Field cultivate corn	73	28,666	1.13	--	--	5.9	11	117	120
		No-tillage soybeans	73	115,000	1.05	--	--	6.4	--	--	45
		Field cultivate soybeans	51	125,333	1.09	--	--	7.1	--	--	43

3	Butler	Cover crop following corn silage corn	8	30,833	1.12	--	--	6.3	21	99	6‡
		No cover crop following corn silage corn	10	29,833	1.19	--	--	6.1	38	175	6‡
		Cover crop following corn silage soybeans	97	166,700	1.19	4.4	10.1	6.5	--	--	58
		No cover crop following corn silage soybeans	13	207,000	1.20	4.2	10.9	5.9	--	--	59
3	Delaware	Strip-tillage	69	31,166	1.25	4.8	11.7	6.7	18	8526	180
		Chisel plow with NH_3	43	29,166	1.05	4.9	11.3	6.5	49	4300	161
		Disk incorporated manure N	55	29,333		6.4	11.5	6.3	46	7807	184
3	Fayette	No-tillage	54	31,113	1.13	--	--	6.6	23	96	205
		Subsoil tillage	45	26,780	1.17	--	--	6.4	29	683	201
3	Howard – 1	No-tillage corn	64	30,666	1.12	3.9	13.4	6.1	20	3530	193
		Ridge tillage corn	70	31,000	1.16	3.8	13.1	6.1	18	2417	196
		No-tillage soybean	80	92,333	1.11	4.0	13.3	6.5	--	--	42
		Ridge tillage soybean	73	119,666	1.24	3.1	13.5	6.5	--	--	42
3	Howard – 2	Baled corn stalks corn	32	30,666	1.12	4.1	12.1	7.1	61	4366	159
		Non-baled corn stalks corn	49	31,333	1.12	4.4	12.6	7	40	3136	161
3	Winneshiek	No-till	88	155,333	1.16	--	--	6.9	--	--	62
		Chisel plow	44	157,750	1.19	--	--	6.7	--	--	61
4	Adair	No-tillage soybeans	77	105,333	1.12	2.9	12.0	6.2	--	--	56
		No- tillage w/cover crop soybeans	90	116,667	1.13	--	--	6.5	--	--	52
		Disk- 1 pass soybeans	47	111,667	1.13	2.8	11.8	6.4	--	--	58

Region	County	Comparison	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter*	C:N Ratio*	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
4	Audubon	Disc incorporated manure corn	61	24,166	1.21	--	--	6.0	22	5043	242
		Injected manure (1) corn	57	24,000	1.10	--	--	6.2	17	4003	240
		Injected manure (2) corn	64	24,166	1.26	--	--	5.4	29	6940	238

Region	County	Comparison	Residue Estimation	Final Plant Population	Bulk Density	Organic Matter*	C:N Ratio*	pH	Late Spring Soil Nitrate	Fall Stalk Nitrate	Yield
			%	plants / acre	g / cm^3	%			ppm	ppm	bu / acre
4	Keokuk- 1	No-tillage soybeans	62	--	0.94	2.9	12.0	7.1	--	--	34
		Cultivate- 1 pass soybeans	20	--	0.87	2.8	11.8	7.0	--	--	37
4	Keokuk-2	Corn-soybean rotation corn	58	26,333	0.92	--	--	6.1	16	5	151
		Alfalfa	65	33	0.91	--	--	6.7	--	--	2†
		Oats	65	33	0.91	--	--	6.7	--	--	1†
4	Muscatine- 1	Manure + 0 N corn	40	27,000	0.94	--	--	7.6	18	2106	197
		Manure + 40 N corn	42	26,166	0.93	--	--	7.6	15	2076	189
		Manure + 60 N corn	39	26,333	0.93	--	--	7.7	16	2132	191
4	Muscatine- 2	No-tillage soybeans	80	96,666	1.02	--	--	6.5	--	--	55
		Chisel plow soybeans	18	98,333	0.94	--	--	6.5	--	--	56
4	Page	No-tillage soybeans	57	134,833	1.34	3.8	11.7	6.6	--	--	63
		Alfalfa	100	33‡	1.13	3.7	11.0	6.8	--	--	3§
		Pasture	100	33‡	1.5	3.6	10.4	6.2	--	--	1§

4	Ringgold	No-till food plot corn	--	20,333	1.16	--	--	6.8	--	--	172
		No-till food plot soybeans	--	145,000	1.16	--	--	6.8	--	--	48
4	Shelby	No-till N-35 corn	58	30,000	1.00	--	--	6.0	23	329	163
		No-till N-80 corn	53	30,500	1.07	--	--	6.1	15	1168	195
		No-till N-143 corn	59	31,000	1.09	--	--	6.5	19	2417	203
4	Washington	No starter fertilizer corn	72	31,333	0.94	--	--	6.7	17	501	218
		Starter fertilizer corn	73	31,167	0.99	--	--	6.5	22	365	220
5	Fremont	No-tillage soybeans	56	141,166	1.03	3.0	10.3	--	--	--	58
		No-tillage w/starter fertilizer soybeans	61	142,666	1.12	2.9	9.8	--	--	--	47
5	Mills	Injected N corn	42	24,833	1.04	--	--	5.8	53	7350	191
		Broadcast N corn	40	25,667	1.09	--	--	6.1	43	4067	186
5	Pottawattamie	No-tillage soybeans	56	110,166	1.01	3.1	9.5	6.2	--	--	53
		No- tillage with row cleaners soybeans	62	116,333	1.18	2.6	10.0	6.1	--	--	53
		Field cultivate- 1 pass soybeans	40	122,500	1.26	3.4	11.0	6.2	--	--	54

†Data from the 2005 season.

‡ Stems per square foot

§ Tons/acre

Economics Report

Mike Duffy & David Correll, Economics Department

The crop year 2006 involved 31 cooperators. After initially reviewing the cooperators we determined that 3 of the studies were not suitable for a complete economic analysis. These studies really represented demonstration projects.

We decided that a partial budget approach was the most appropriate way to evaluate the projects. Last year we attempted to complete a whole farm analysis but this did not produce satisfactory results due to the wide variation in farms. The partial budget approach will allow us to compare different projects of a similar nature.

The first step in the analysis was to establish base costs for machinery, inputs and the value of the output. These base costs are necessary to standardize the results that will allow comparisons across studies. The Iowa State Extension publication FM1712 was used for the input and machinery operation costs. The second step was to evaluate the individual projects. To do this we used the operations and materials reported by the cooperators. Each cooperator reported their comparison and machinery and input data to us. The yield and other agronomic data were reported to the agronomy team. The third step was to compile the cooperator data into a usable form for the partial budget. This was a very time consuming process. Several of the cooperators used terms that were difficult to put into specific operations. For example, no-till. We needed to know exactly what this entailed and it took several iterations in some cases to get the information. The fourth step was to prepare individual sheets for each cooperator. We worked with the project team to develop a complete form that will present the economic comparisons using the partial budget approach. We will put this information on the front of a report and the agronomic data on the back.

We have finished 19 of the reports. We are still awaiting final clarification from nine of the cooperators and as we indicated three of the cooperators will not have an economic analysis prepared.

Our intention is to divide the cooperators based on their projects. We have three significant groupings for the studies. We will also perform some tests using alternative corn and soybean prices. The major comparisons will be no-till versus some other form of tillage. For example, we have four studies that compared no-till with field cultivators, two comparing no-till with ridge till and there were several no-till versus other mechanical operations such as disking, chisel plowing and harrowing. The second group of comparisons was examining alternative nitrogen rates. And, the third set of comparisons was a mixture of studies such as stalk removal and sub-soiling.

Another project completed during this year was the development of a profitability calculator examining the returns to alternative rotations. This spreadsheet lets farmers compare the profitability of shifting from a corn soybean to a corn-corn-soybean or continuous corn rotation. The calculator was presented at several conferences and was developed into a spread sheet for the Extension Service Agricultural Decision Maker. Since December there have been 2040 downloads of the spreadsheet.

2006
No till vs. Disking vs. Deep disk ripping
Region 1 (1 of 2)

The cooperator's experiment compared no till, disking and disk ripping systems on soybeans. This sheet shows the comparison of no till and disking.

No Till			**Disking**		
Average yield 57.0 bu/acre			**Average yield** 62.5 bu/acre		
Gross Revenue $370.50/acre			**Gross Revenue** $406.25/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Tandem Disk	$3.00	$2.10
			• Planter	$4.20	$3.35
			• Field Cultivator	$1.90	$1.80

Comparisons

Increase in gross revenue going from no till to disking

$35.75/acre

Increase in costs going from no till to disking

$8.00/acre

Increase in returns going from no till to disking

$27.75/acre

--Chemical applications were identical in all three systems.
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. For example, soybeans were valued at $6.50 per bushel.
--Yield and revenue estimates were rounded.

2006
No till vs. Disking vs. Deep disk ripping
Region 1 (2 of 2)

The cooperator’s experiment compared no till, disking and disk ripping systems. This sheet shows the comparison of no till and deep disk ripping. Sheet 1 shows a comparison of no till with tandem disking.

No Till			**Deep Disk Ripping**		
Average yield 57.0 bu/acre			**Average yield** 63.4 bu/acre		
Gross Revenue $370.50/acre			**Gross Revenue** $411.88/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Disk ripper*	$5.60	$6.30
			• Planter	$4.20	$3.35
			• Field Cultivator	$1.90	$1.80

Comparisons

Increase in gross revenue going from no till to subsoil tillage

$41.38/acre

Increase in costs going from no till to subsoil tillage

$14.80/acre

Increase in returns going from no till to subsoil tillage

$26.58/acre

*The costs for a disc ripper were the costs associated with a v-ripper.
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Disking
Region 1

The cooperator compared no-till and disking systems on corn. The disking operation increased yield only slightly, making the no-till system more profitable.

No Till			**Disking**		
Average yield 140.4 bu/acre			**Average yield** 141.3 bu/acre		
Gross Revenue $491.38/acre			**Gross Revenue** $494.56/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Planter	$4.20	$3.35
			• Tandem Disk	$3.00	$2.10

Comparisons

Increase in gross revenue going from no till to disking

$3.18/acre

Increase in costs going from no till to disking

$4.30/acre

Decrease in returns going from no till to disking

-$1.12/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Disking vs. Chisel Plow
Region 2 (1 of 2)

The cooperator compared three different tillage systems on soybeans. This sheet compares his no till system to his disking system. Our analysis showed that disking with field cultivation provided higher returns. Somewhat lower returns were shown for a chisel plow with field cultivation. The cooperator's chisel plow treatment is analyzed on sheet 2.

No Till			**Disking**		
Average yield 46.8 bu/acre			**Average yield** 55.8 bu/acre		
Gross Revenue $303.98/acre			**Gross Revenue** $362.48/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Planter	$4.20	$3.35
			• Chop stalks	$3.90	$3.40
			• Disk	$3.00	$2.10
			• Field Cultivate	$1.90	$1.80

Comparisons

Increase in gross revenue going from no till to disking

$58.50/acre

Increase in costs going from no till to disking

$15.30/acre

Increase in returns going from no till to disking

$43.20/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Disking vs. Chisel Plow
Region 2 (2 of 2)

The cooperator compared three different tillage systems on soybeans. This sheet compares his no till system to his chisel plow system. Our analysis showed that chisel plow with field cultivation provided higher returns than no till this year. Higher returns were shown for a disking with field cultivation. The cooperator's disking plow treatment is analyzed on sheet 1.

No Till			**Chisel Plow**		
Average yield 46.8 bu/acre			**Average yield** 53.6 bu/acre		
Gross Revenue $303.98/acre			**Gross Revenue** $348.40/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Planter	$4.20	$3.35
			• Chop stalks	$3.90	$3.40
			• Chisel Plow	$3.30	$3.50
			• Field Cultivate	$1.90	$1.80

Comparisons

Increase in gross revenue going from no till to chisel plow

$44.42/acre

Increase in costs going from no till to chisel plow

$17.00/acre

Increase in returns going from no till to chisel plow

$27.42/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Field cultivation system
Region 2

The cooperator compared no-till and field cultivation systems on corn. In our analysis, greater returns were shown for the no-till system than for the field cultivation system.

No Till			**Field Cultivation** Disk Chisel and Field Cultivation		
Average yield 184.7 bu/acre			**Average yield** 185.0 bu/acre		
Gross Revenue $646.33/acre			**Gross Revenue** $647.62/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Field Cultivate	$1.90	$1.80
			• Planter	$4.20	$3.35
			• Disk Chisel*	$3.00	$2.10

Comparisons

Increase in gross revenue going from no till to field cultivation

$1.29/acre

Increase in costs going from no till to field cultivation

$8.00/acre

Decrease in returns going from no till to field cultivation

-$6.71/acre

* Tandem disk costs were used for the costs of disk chiseling.
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Field Cultivation
Region 2
(1 of 2)

The cooperator compared no till against a field cultivation tillage system on both corn and soybeans. This sheet shows the comparison for corn. Sheet 2 shows the comparison for soybeans. Our analysis shows that field cultivation was less profitable on both crops.

No Till			**Field Cultivation**		
Average yield 126.2 bu/acre			**Average yield** 120.3 bu/acre		
Gross Revenue $441.70/acre			**Gross Revenue** $421.05/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Field Cultivator	$1.90	$1.80
			• Planter	$4.20	$3.35

Comparisons

Decrease in gross revenue going from no till to field cultivation

-$20.65/acre

Increase in costs going from no till to field cultivation

$2.90/acre

Decrease in returns going from no till to field cultivation

-$23.55/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems
--Yield and revenue estimates were rounded.

2006
No Till vs. Field Cultivation
Region 2
(2 of 2)

The cooperator compared no till against a field cultivation tillage system on both corn and soybeans. This sheet shows the comparison for soybeans. Sheet 1 shows the comparison for soybeans. Our analysis shows that field cultivation was less profitable on both crops.

No Till			**Field Cultivation**		
Average yield 45.04 bu/acre			**Average yield** 43.33 bu/acre		
Gross Revenue $292.76/acre			**Gross Revenue** $281.65/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Field Cultivator	$1.90	$1.80
			• Planter	$4.20	$3.35

Comparisons

Decrease in gross revenue going from no till to field cultivation

-$11.11/acre

Increase in costs going from no till to field cultivation

$2.90/acre

Decrease in returns going from no till to field cultivation

-$14.01/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
Soybeans with and without subsoil tillage in 2004
Region 2

The cooperator examined the effect of subsoil tillage in a corn-soybean rotation. The deep tillage was done in the fall of 2004, before planting a corn crop in 2005. Our analysis showed that the land tilled in 2004 yielded higher in 2006 and resulted in greater partial returns.

No Till without subsoil tillage			**No Till, with subsoil tillage in 2004**		
Average yield 51.5 bu/acre			**Average yield** 53.8 bu/acre		
Gross Revenue $334.71/acre			**Gross Revenue** $349.68/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
			• V-ripper ('04)	$5.40	$2.98

Comparisons

Increase in gross revenue going from no till to subsoil tillage

$14.97/acre

Increase in costs going from no till to subsoil tillage

$8.38/acre

Increase in returns going from no till to subsoil tillage

$6.59/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
120 lbs N vs 160 lbs N
Region 2

This cooperator compared two different nitrogen sidedress treatments on corn. Both plots received 30 lbs of nitrogen during strip tillage. Later, one half of the field was side-dressed with 90 lbs and the other half with 130 lbs. The plot that received 130 additional lbs of nitrogen also received additional herbicides. Our analysis showed higher yields and returns for this plot.

120 Lbs Nitrogen			**160 Lbs Nitrogen**		
Average yield 134.8 bu/acre			**Average yield** 156.2 bu/acre		
Gross Revenue $471.92/acre			**Gross Revenue** $546.70/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• 90 lbs N		$22.50	• 130 lbs N		$32.50
			• Resolve (1oz)		$6.80
			• Calisto (2oz)		$8.97

Comparisons

Increase in gross revenue going from 120 lbs to 160 lbs nitrogen

$74.78/acre

Increase in costs going from 120 lbs to 160 lbs nitrogen

$25.77/acre

Increase in returns going from 120 lbs to 160 lbs nitrogen

$49.01/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Yield and revenue estimates were rounded.

2006
No Till vs. Chisel Plow with Field Finisher
Region 3

The cooperator compared a no till system on soybeans to one using one pass with a chisel plow and one pass with a field finisher.

No Till			**Chisel Plow and Field Finisher**		
Average yield 62.4 bu/acre			**Average yield** 61.3 bu/acre		
Gross Revenue $405.82/acre			**Gross Revenue** $398.45/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No-Till Planter	$4.75	$3.60	• Chisel Plow	$3.30	$3.50
			• Field Finisher*	$2.10	$2.10
			• Planter	$4.20	$3.35

Comparisons

Decrease in gross revenue going from no till to tillage system

-$7.37/acre

Increase in costs going from no till to tillage system

$10.20/acre

Decrease in returns going from no till to tillage system

-$17.57/acre

* Disk/field cultivator costs were used for the costs of a field finisher.
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
Corn with and without subsoil tillage
Region 3

The cooperator examined the effect of subsoil tillage on corn ground that is fertilized with chicken manure and commercial nitrogen. Our analysis showed that the subsoil tillage practice reduced yield and revenue, and increased costs.

No Till			**Subsoil tillage**		
Average yield 206.1bu/acre			**Average yield** 202.7 bu/acre		
Gross Revenue $721.23/acre			**Gross Revenue** $709.57/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• V-ripper	$5.60	$6.30
			• Planter	$4.20	$3.35

Comparisons

Decrease in gross revenue going from no till to subsoil tillage

-$11.66/acre

Increase in costs going from no till to subsoil tillage

$11.10/acre

Decrease in returns going from no till to subsoil tillage

-$22.76/acre

-- Plots were fertilized with chicken manure as well as 60# N at planting.
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Ridge Till
Region 3
(1 of 2)

The cooperator compared ridge till and no till systems on corn and soybeans. This sheet shows the results for corn. Sheet 2 shows the results for soybeans. In our analysis, the ridge till system showed greater profitability with corn.

No Till			**Ridge Till**		
Average yield 193.2 bu/acre			**Average yield** 196.2 bu/acre		
Gross Revenue $676.20/acre			**Gross Revenue** $686.70/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Ridge Tiller*	$1.90	$1.80
			• Planter	$4.20	$3.35

Comparisons

Increase in gross revenue going from no till to ridge tilling

$10.50/acre

Increase in costs going from no till to ridge tilling

$2.90/acre

Increase in returns going from no till to ridge tilling

$7.60/acre

* Field cultivator costs were used for the costs of ridge tilling
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Ridge Till
Region 3
(2 of 2)

The cooperator compared ridge till and no till systems on corn and soybeans. This sheet shows the results for soybeans. Sheet 1 shows the results for corn. In our analysis, the ridge till system showed greater profitability with soybeans.

No Till			**Ridge Till**		
Average yield 41.67 bu/acre			**Average yield** 42.18 bu/acre		
Gross Revenue $270.86/acre			**Gross Revenue** $274.17/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Ridge Tiller*	$1.90	$1.80
			• Planter	$4.20	$3.35

Comparisons

Increase in gross revenue going from no till to ridge tilling

$3.31/acre

Increase in costs going from no till to ridge tilling

$2.90/acre

Increase in returns going from no till to ridge tilling

$0.41/acre

* Field cultivator costs were used for the costs of ridge tilling
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

No Till vs. Harrow vs. Field Cultivation
Region 3
(1 of 2)

The cooperator compared no till against harrowing and field cultivation tillage systems on corn. This sheet shows a comparison of no till and harrowing. Sheet 2 compares no till and field cultivation. Our analysis showed the greatest return to harrowing, followed by field cultivation and no tillage.

No Till			**Harrowing**		
Average yield 186.83 bu/acre			**Average yield** 194.40 bu/acre		
Gross Revenue $653.91/acre			**Gross Revenue** $680.40/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Planter	$4.20	$3.35
			• Harrow	$1.60	$0.90

Comparisons

Increase in gross revenue going from no till to harrowing

$26.49/acre

Increase in costs going from no till to harrowing

$1.70/acre

Increase in returns going from no till to harrowing

$24.79/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems
--Yield and revenue estimates were rounded.

No Till vs. Harrow vs. Field Cultivation Region 3 (2 of 2)

The cooperator compared no till against harrowing and field cultivation tillage systems on corn. This sheet shows a comparison of no till and field cultivation. Sheet 1 compares no till and harrowing. Our analysis showed the greatest return to harrowing, followed by field cultivation.

No Till			**Field Cultivation**		
Average yield 186.83 bu/acre			**Average yield** 191.83 bu/acre		
Gross Revenue $653.91/acre			**Gross Revenue** $671.41/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Planter	$4.20	$3.35
			• Field Cultivator	$1.90	$1.80

Comparisons

Increase in gross revenue going from no till to field cultivation

$17.50/acre

Increase in costs going from no till to field cultivation

$2.90/acre

Increase in returns going from no till to field cultivation

$14.60/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
Baled vs. Not-baled Cornstalks
Region 3

This cooperator is analyzing the effect of removing cornstalks. Cornstalks were removed for the first time in the fall of 2005 as large round bales. The revenues and costs of this baling operation were included in our economic analysis of the 2006 crop year. The cooperator received $204 per acre for his cornstalks, which contributed significantly to the profitability of the baled system. Grain yields declined only slightly on the baled ground.

Not Baled			**Baled**		
Average yield 160.5 bu/acre			**Average yield** 159.4 bu/acre		
Gross Revenue $561.75/acre			**Gross Revenue from grain** $557.94/acre		
			Gross Revenue from stalks $204/acre		
			Total Gross Revenue $761.94/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
			• Baling ---8.4 bales/acre	$46.20	$34.86

Comparisons

Increase in gross revenue going from not baling to baling

$200.19/acre

Increase in costs going from not baling to baling

$81.06/acre

Increase in returns going from not baling to baling

$119.13/acre

-- We used a cornstalk price of $37.50/ton for large round bales, based on reported auction prices at Fort Atkinson.
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till with three different nitrogen rates
Region 4
(1 of 2)

The cooperator experimented with side-dressing nitrogen on no-till corn. The first comparison shows the effect of applying 15 additional gallons of 32%. Our analysis showed that the extra nitrogen boosted profitability. Sheet 2 shows the results of adding 30 gallons of 32%. Our analysis showed that the additional 30 gallon application was the most profitable.

No Till 10 gallons at planting	**No Till** 10 gallons at planting 15 gallons side dressed		
Average yield 163.3 bu/acre	**Average yield** 194.6 bu/acre		
Gross Revenue $571.60/acre	**Gross Revenue** $681.00/acre		
Treatment Costs/acre	**Treatment Costs/acre**	**Fixed**	**Variable**
	• Sidedressing*	$0.90	$0.80
	• 15 gal. 32% N		$13.20

Comparisons

Increase in gross revenue from additional nitrogen

$109.40/acre

Increase in costs from additional nitrogen

$14.90/acre

Increase in returns from additional nitrogen

$94.50/acre

* Sprayer costs were used for the costs of sidedressing 32%N.
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till with three different nitrogen rates
Region 4
(2 of 2)

The cooperator experimented with side-dressing nitrogen on no-till corn. This sheet shows the results of adding 30 gallons of 32%. Our analysis showed that the additional 30 gallon application was the most profitable treatment.

No Till 10 gallons at planting	**No Till** 10 gallons at planting 30 gallons side dressed		
Average yield 163.3 bu/acre	**Average yield** 203.1 bu/acre		
Gross Revenue $571.60/acre	**Gross Revenue** $710.97/acre		
Treatment Costs/acre	**Treatment Costs/acre**	**Fixed**	**Variable**
	• Sidedressing*	$0.90	$0.80
	• 30 gal. 32% N		$26.40

Comparisons

Increase in gross revenue from additional nitrogen

$139.37/acre

Increase in costs from additional nitrogen

$28.10/acre

Increase in returns from additional nitrogen

$111.27/acre

* Sprayer costs were used for the costs of sidedressing 32%N.
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Chisel Plow with Soil Finisher
Region 4

The cooperator compared no till against a tillage system comprising chisel plowing and a soil finisher on soybeans. This analysis shows the tilled system to be more profitable.

No Till			Chisel Plow and Soil Finisher		
Average yield 33.3 bu/acre			**Average yield** 36.5 bu/acre		
Gross Revenue $219.05/acre			**Gross Revenue** $237.03/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Chisel Plow	$3.30	$3.50
			• Planter	$4.20	$3.35
			• Soil Finisher*	$2.10	$2.10

Comparisons

Increase in gross revenue going from no till to tillage system

$17.98/acre

Increase in costs going from no till to tillage system

$10.20/acre

Increase in returns going from no till to tillage system

$7.78/acre

* Disk/field cultivator costs were used for the costs of a soil finisher.
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till vs. Field Cultivation
Region 4

The cooperator compared no-till and field cultivation systems on soybeans. Our analysis showed the field cultivation system to be more profitable, especially owing to an additional herbicide treatment applied to the no till plots prior to planting.

No Till			**Field Cultivation**		
Average yield 54.5 bu/acre			**Average yield** 56.1 bu/acre		
Gross Revenue $353.99/acre			**Gross Revenue** $364.82/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Chisel Plow	$3.30	$3.50
• Sprayer	$0.90	$0.80	• Disking	$3.00	$2.10
• Gangster (1.8 oz)		$11.40	• Planter	$4.20	$3.35
• Durango (24 oz)		$5.33			

Comparisons

Increase in gross revenue going from no till to field cultivation

$10.83/acre

Decrease in costs going from no till to field cultivation

-$7.33/acre

Increase in returns going from no till to field cultivation

$18.16/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Yield and revenue estimates were rounded.

2006
No Till with and without starter fertilizer
Region 4

The cooperator analyzed the effect of starter fertilizer on no-till corn. Our analysis showed that the starter improved yield, but not by enough to cover the costs of purchasing and applying the starter fertilizer. The no-till without starter fertilizer system showed greater profitability.

No Till without Starter Fertilizer			**No Till with Starter Fertilizer**		
Average yield 218.3 bu/acre			**Average yield** 220.1 bu/acre		
Gross Revenue $763.93/acre			**Gross Revenue** $770.35/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
			• Bulk Fertilizer Spreader	$1.60	$1.15
			• Starter 55# of(9-18-9)		$7.15

Comparisons

Increase in gross revenue from adding starter fertilizer

$6.42/acre

Increase in costs from adding starter fertilizer

$9.90/acre

Decrease in returns from adding starter fertilizer

-$3.48/acre

--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
No Till
vs.
Tandem Disking
Region 5

The cooperator compared no-till with and without row cleaners on his planter against one-pass field cultivation with a tandem disk. Row cleaners did not affect returns because they contributed minimally to cost and yield. Our analysis shows that the no-till system provided higher partial returns than did one-pass field cultivation.

No Till Without Row Cleaners			**Tandem Disking**		
Average yield 53.4 bu/acre			**Average yield** 53.5 bu/acre		
Gross Revenue $347.10/acre			**Gross Revenue** $347.53/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
• No Till Planter	$4.75	$3.60	• Tandem Disk	$3.00	$2.10
			• Planter	$4.20	$3.35

Comparisons

Increase in gross revenue going from no till to tandem disking

$0.43/acre

Increase in costs going from no till to tandem disking

$4.30/acre

Decrease in returns going from no till to tandem disking

-$3.87/acre

--No till with row cleaners showed an average yield of 53.2 bu/acre
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

2006
Liquid N Injection and surface application vs. only surface application
Region 5

The cooperator compared nitrogen treatments on corn. One plot received two spring nitrogen treatments: (1) a liquid injection (120 lbs N); and (2) a surface application (20 lbs N). The other plot received only the surface application (120 lbs N).

Only surface application (120 lbs)			**Surface application and liquid N injection (140 lbs total)**		
Average yield 186.2 bu/acre			**Average yield** 191.4 bu/acre		
Gross Revenue $651.77/acre			**Gross Revenue** $669.87/acre		
Treatment Costs/acre	**Fixed**	**Variable**	**Treatment Costs/acre**	**Fixed**	**Variable**
			• Liquid N Injection*	$4.00	$3.70
			• 20 lbs N		$5.00

Comparisons

Increase in gross revenue from adding liquid injection

$18.10/acre

Increase in costs from adding liquid injection

$12.70/acre

Increase in returns from adding liquid injection

$5.40/acre

* NH3 applicator costs were used for the costs of liquid N injection.
--Machinery costs from ISU Extension, FM1712
--Prices for inputs and outputs were estimated by the ILF team and held constant across cooperators and experiments. Corn = $3.50/bushel, Soybeans = $6.50/bushel.
--Chemical applications were identical in all systems.
--Yield and revenue estimates were rounded.

Sociological/Evaluative Component

Paul Lasley & Jacqueline Comito, Sociology Department

Primary responsibility of the sociological component of ILF will continue to be the evaluation of ILF programs and outreach and to submit these evaluations, recommendations to ILF team and steering committee in a timely fashion. As with the overall ILF project, the evaluation team assessed how we were evaluating the project for crop year 2006 and we have made some changes for crop year 2007 in order to better meet the needs of the project and to assure the overall success of the project. We have attached the new form that will be filled out by team members for any event or activity associated with ILF. We will continue to gather participants' response to activities. All participants will be asked to fill out a comment card at the event so we can learn more about why they are there. For all major activities, we will do follow-up phone surveys to see if producers are considering changes to their land management choices based on the event.

Each quarter is presented in summary since more detailed report has already been submitted to the IDALS throughout the year.

First Quarter – April through June 2006

Dr. Comito prepared a summary of the winter discussion group meetings and prepared recommendation and evaluation for ILF steering committee in May. She worked Mark Licht on field days agenda, evaluation tools, a multi-disciplinary conservation systems handout, Conservation Minute material and newsletter items. Comito also began ILF cooperator on-farm interviews in order to capture video material for a short video on ILF. Comito also participated in NRCS new employee training and evaluated the first field day at the Smeltzer Farm. We also took the results of the baseline survey conducted the previous summer and weighted the results so that they clearly reflect the overall state results are not weighted disproportional favoring one region over another.

Second Quarter – July through September 2006

This quarter was one of transition in the social science component of Iowa Learning Farms with the retirement of Steve Padgitt. As a result Paul Lasley has assumed the PI role in the social science component of the ILF in July. Throughout the summer months, Dr. Comito met with Elaine Ilvess, Laura Greiner (NRCS), Jean McGuire and Mark Licht to plan a stakeholder event that would raise the visibility of the Iowa Learning Farms project and build its statewide support. Due to extenuating circumstances, the event was postponed. To gather material for the ILF video, Dr. Comito made additional farm visits at the farms of 3 ILF cooperators. The purpose of these visits was to more fully understand the role of the farmer cooperators in the ILF, to understand their views of conservation and to increase farmer visibility in the project. With the help of Mark Licht, Comito wrote ILF cooperator profiles for the ILF newsletter. Most of the original photographs used by the ILF project come from Comito's ethnographic and evaluative research.

Third Quarter – October through December 2006

Comito, with the help of Jean McGuire and Jon Anderson completed a promotional video that features the voices of three ILF farmer cooperators and advocates for the Iowa Learning Farms approach. This DVD premiered at the Iowa Soil and Water Conservation District Commissioners Conference in November and will be used at the stakeholder event. For two presentations in November, Paul Lasley and Comito began development of material that uses a social action model to renew commitment to conservation ethics in Iowa and explore the idea of a conservation culture in Iowa. These presentations reached combined audiences of around 300 people and promoted the ILF project approach. This quarter marked the restructuring of the ILF project and team and brought Jerry DeWitt on board for overall manager. Within the new structure, Lasley's and Comito's primary responsibility continues to be in an evaluative position with the intent of helping ILF successful meet its overall goals of improving water quality and seeing real change on the land. An ILF communications team was formed and started monthly meetings. Comito is on this team, which includes DeWitt, Laura Miller and Jean McGuire. Comito took the lead this quarter in planning the display material for the January 24 Capitol Rotunda event. In addition, several new communication/outreach initiatives were started.

Fourth Quarter – January through March 2007

Comito was responsible for coordinating the ILF display at the January 24 Capitol Rotunda event. In February, Comito organized and attended 5 ILF regional cooperator dinners with Jerry DeWitt. On March 5, Comito (along with communications team) coordinated the first Iowa Learning Farm Networking Workshop. These meeting were an opportunity to get to know these cooperators better and to facilitate the cooperators getting to know each other better and forming stronger networking between ILF team and crop specialists and cooperators and among cooperators. These meetings also gave us the opportunity to introduce changes in the ILF project, especially the water quality component. All the cooperators seemed very interested in ILF and eager to engage more in the project to help educate others in their areas about conservation systems. As a result of these meetings, we have a better idea who they are and they have a better idea of what ILF is doing and what it is hoping to accomplish this year. It is our goal that we expand more fully the current ILF network so that our cooperators will gain prominence in their communities and be viewed as conservation leaders among their peers and strengthen relationships within the network. Between the February dinner meetings and the March networking workshop, we have met with 26 of the 31 cooperators.

Iowa Learning Farm
Iowa State University Extension
Event Evaluation Form

Name of event: ____

Date: __________________ Time: ______________________

Location: ____

Event objectives

____
____
____
____
____

Description of Audience (number, age-range, background, ratio of ISU, state employees to other participants)

____
____
____
____

Please describe level of engagement on part of audience.

____
____
____
____
____
____

List the questions that were asked of presenters (use opposite side if needed).

____
____
____
____
____
____

Methods used for promoting the event

____
____
____
____

Positives elements (strengths):

____
____
____
____
____
____

Elements to improve (weaknesses):

____
____
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____
____

Additional comments and recommendations for future events:

____
____
____
____
____
____
____

ILF team members in attendance

____
____
____
____
____

Submitted by ____
Email address ____

Please fill at form at the event and return either hardcopy or electronic version to Jacqueline Comito, jmarie64@isunet.net or Jon Lundvall, jlundval@iastate.edu.

Iowa Learning Farm
Iowa State University Extension

____
(put in name of event)

Name: ____

Mailing Address:____

City: ___________________________ State: _________ Zip:_____________

Phone: ________________________Email: ___________________________

What best describes you(check all that apply)?

ρ Farmer ρ Landowner ρ Other?______________________________
ρ government employee

How did you hear of the event (check all that apply)?

ρNeighbor ρISU Extension Staff ρDNR, NRCS staff ρWebsite
ρRadio ρNewspaper ρOther ________________________________

Briefly give us an idea of your reason for attending the event
____
____

IOWA STATE UNIVERSITY
University Extension

Iowa Learning Farm Baseline Study – July 2005
Percentage Distribution **(N=978) weighted results**

1. Iowa county that holds the majority of your crop acres (n=956)

1%	Adair (001)
<1%	Adams (003)
1%	Allamakee (005)
1%	Appanoose (007)
<1%	Audubon (009)
1%	Benton (011)
<1%	Black Hawk (013)
1%	Boone (015)
1%	Bremer (017)
2%	Buchanan (019)
2%	Buena Vista (021)
2%	Butler (023)
1%	Calhoun (025)
1%	Carroll (027)
<1%	Cass (029)
1%	Cedar (031)
1%	Cerro Gordo (033)
2%	Cherokee (035)
1%	Chickasaw (037)
<1%	Clarke (039)
1%	Clay (041)
1%	Clayton (043)
1%	Clinton (045)
1%	Crawford (047)
1%	Dallas (049)
<1%	Davis (051)
<1%	Decatur (053)
1%	Delaware (055)
<1%	Des Moines (057)
1%	Dickinson (059)
1%	Dubuque (061)
1%	Emmet (063)
2%	Fayette (065)
1%	Floyd (067)
1%	Franklin (069)
2%	Fremont (071)
1%	Greene (073)
2%	Grundy (075)
<1%	Guthrie (077)
<1%	Jefferson (101)
1%	Johnson (103)
1%	Jones (105)
1%	Keokuk (107)
2%	Kossuth (109)
1%	Lee (111)
1%	Linn (113)
1%	Louisa (115)
1%	Lucas (117)
2%	Lyon (119)
<1%	Madison (121)
<1%	Mahaska (123)
<1%	Marion (125)
1%	Marshall (127)
2%	Mills (129)
1%	Mitchell (131)
2%	Monona (133)
1%	Monroe (135)
1%	Montgomery (137)
<1%	Muscatine (139)
2%	O'Brien (141)
1%	Osceola (143)
1%	Page (145)
1%	Palo Alto (147)
2%	Plymouth (149)
1%	Pocahontas (151)
<1%	Polk (153)
5%	Pottawattamie (155)
1%	Poweshiek (157)
<1%	Ringgold (159)
2%	Sac (161)
<1%	Scott (163)
1%	Shelby (165)
3%	Sioux (167)
1%	Story (169)
1%	Tama (171)
<1%	Taylor (173)
1%	Union (175)
<1%	Van Buren (177)

1%	Hamilton (079)	<1%	Wapello (179)
1%	Hancock (081)	<1%	Warren (181)
1%	Hardin (083)	2%	Washington (183)
2%	Harrison (085)	1%	Wayne (185)
<1%	Henry (087)	1%	Webster (187)
1%	Howard (089)	1%	Winnebago (189)
1%	Humboldt (091)	1%	Winneshiek (191)
1%	Ida (093)	4%	Woodbury (193)
1%	Iowa (095)	1%	Worth (195)
1%	Jackson (097)	1%	Wright (197)
1%	Jasper (099)		

2. **Total acres in farming operation** (n=978) Range = 200-18,000; Median = 600; $\bar{x}$ = 837; SD = 1,011

Total row crop acres (n=944) Range = 0-17,000; Median = 500; $\bar{x}$ = 741; SD = 967

Acres owned (n=967) Range = 0-5,500; Median = 240; $\bar{x}$ = 331; SD = 436

Acres rented from others (n=935) Range = 0-11,500; Median = 340; $\bar{x}$ = 481; SD = 780

In general, do you manage your rented acres similarly or differently from your owned acres? (n=741)

Similarly............ 98%

Differently.......... 2% ➔ *(Explain)* (n=16)

Comment 94%

No comment 6%

3. **What enterprises are part of your farming operation?** *(Check all that apply.)* (n=978)

% ✓'ed	
99	Row crops
43	Pastureland/hay and forage
21	Hogs
39	Cattle
2	Poultry
1	Vegetable/horticulture

4. Do you have detailed management plans for the following aspects of your farming operation?

(n=978) for each	Check if Have Plan	Year Plan Updated	If no plan, do you plan to develop one in next 1–3 years? Yes	No
Row crops	61%	(n=334) Range = 1976-2006; Mode = 2005 (54%)	(n=302) 20%	80%
Tillage	53%	(n=291) Range = 1980-2006; Mode = 2005 (50%)	(n=284) 19%	81%
Commercial fertilizers	52%	(n=288) Range = 1976-2006; Mode = 2005 (56%)	(n=287) 23%	77%
Manure management	26%	(n=146) Range = 1990-2005; Mode = 2005 (57%)	(n=322) 12%	88%
Pesticide practices	43%	(n=230) Range = 1990-2006; Mode = 2005 (64%)	(n=311) 19%	81%

5. Who (if anyone) helped you design your cropland management plans. *(Check all that apply.)* (n=971)

% ✓'ed	
49	Designed primarily by myself
11	Farming partner
26	Coop/supply dealer
8	Private agronomist/crop consultant
15	USDA agency
3	ISU extension staff
3	Other *(specify)* (n=28) Comment 96% No Comment 4%
25	Not applicable, have not developed cropland management plans

6. In the last four years did you perform soil tests on any land you operate? *(Circle response.)*

(n=878)

Yes .... 93% ➔

No 7%

If yes:

a. What percentage of cropland was tested? (n=878)

1. 100% 47%
2. 75% to 99% 17%
3. 50% to 74% 25%
4. Less than 50%.......... 11%

b. How was the sampling done? *(Check all that apply.)* (n=889)

% ✓'ed

44 By using a grid

46 By random selection, non grid

24 By soil type method

1 Other *(specify)* (n=14) Comment 100% No comment 0%

2 Don't know

c. Who did the sampling? *(Check all that apply.)* (n=889)

% ✓'ed

73 By fertilizer supplier

14 By self

18 By independent consultant

1 Other *(specify)* (n=8) Comment 88% No comment 12%

7. Are you currently using the NRCS Soil Condition Index to help manage your soil quality? (n=956)

Yes 19%

No.. 40%

Not familiar with Soil Condition Index............... 42%

8.Do you have written field-by-field records?

(n=931)

Yes.................. 73% ➔ **If yes:** (n=704)

No.................... 27%

a. Are records kept on the… *(Check all that apply.)*

% ✓'ed

90 Crop varieties planted
77 Soil test results
52 Field operations (tillage, planting)
21 Pest scouting reports and levels of infestation
64 Pesticide application by field
88 Planting dates
91 Fertilizer application rates
76 Yields

b. Who maintains or updates the records? *(Check all that apply.)* (n=704)

% ✓'ed

89 On farm (self or spouse)
5 Consultant
20 Dealer
3 Other *(specify)* (n=24) Comment 100% No Comment 0%

9. Which of the following factors do you use in determining your nutrient application rates? *(Check all that apply.)* (n=977)

% ✓'ed

73 Soil needs
76 Crop needs
71 Yield goals
53 Fertilizer dealer recommendations
14 On farm side-by-side comparisons
40 Overall past experiences
14 ISU Extension recommendations
3 Landlord recommendations stipulation
18 Environmental impacts
3 Other *(specify)* (n=33) Comment 97% No Comment 3%

10.Which of the following pest management practices do you use? *(Check all that apply.)*

% ✓'ed	(n=977)
53	Follow local reports on presence of pests (Extension publications and reports/crop consultant information)
64	Follow local reports on presence of pests from crop consultant or input suppliers
33	Avoid varieties with historical pest problems
33	Spot treat on individual field basis for pest management
13	Adjust planting/harvesting dates to avoid pests
28	Predetermined and scheduled timing for scouting weeds and insects
10	Systematic sampling when scouting (i.e. a set pattern is used in fields)
60	Economic threshold formula to determine appropriate actions

11. Tell us about your dominant tillage systems by indicating the tillage implements you use and the "label" or "name" you use to describe them.

Tillage System (n=976)	(n=895) **Corn Following Corn** 47% ✓ Not Applicable	(n=843) **Corn Following Soybeans** 11% ✓ Not Applicable	(n=828) **Soybeans Following Corn** 14% ✓ Not Applicable	(n=211) **Corn Following Sod** 72% ✓ Not Applicable
Tillage implements	%	%	%	%
Moldboard plowing	7	<1	2	43
Chisel plowing	34	10	23	14
Disking.............................	37	18	30	29
Field cultivating	45	56	38	28
Row cultivating	7	9	6	6
Disk ripping	27	7	18	6
System description				
No-tillage planting............	12	34	40	28
Ridge tillage	1	2	1	1
Reduced tillage.................	21	21	20	6
Mulch tillage	9	3	5	3
Minimum tillage...............	29	30	23	13
Conventional tillage..........	20	15	15	30
Strip tillage.......................	1	2	<1	1
Percentage of cropland in this rotation in 2005...........	(n=401) Range=0-100; Median = 22; $\bar{x}$ = 34; SD = 31	(n=758) Range=0-100; Median = 50; $\bar{x}$ = 56; SD = 25	(n=737) Range=0-120; Median = 50; $\bar{x}$ = 56; SD = 25	(n=150) Range=0-100; Median = 10; $\bar{x}$ = 16; SD = 24

One objective of the Learning Farm project is to provide information to assist farmers in better conservation practices. The following questions ask about your perceptions and experiences.

12. How well do you believe your current tillage systems…

	Not Very Well	Adequate	Very Good	Excellent
a. Provide good seed bed for plant development .... (n=871)	3%	19%	47%	31%
b. Control for weeds and insects.................. (n=864)	4%	26%	47%	23%
c. Control for erosion.................................. (n=867)	3%	24%	45%	29%

13. In the next 3-4 years, what plans, if any, do you have to change tillage systems? (n=948)

No plans	50%	
Minor refinement only	46%	
Significant changes............	5%	*(Please describe your plans)* (n=425)
		Comment 39% No comment 61%

14. On cropland in your immediate vicinity (2-4 mile radius of your residence) which statement best describes…

a. Sheet, rill and wind erosion (n=871)

% ✓'ed

4 Soil loss rates are not controlled and soil loss rates are above the soil loss tolerance level.

9 Soil loss rates are above the soil loss tolerance but at alternate conservation system level.

43 Soil loss rates are at tolerance levels.

29 Soil loss rates are below tolerance levels and are enhancing the soil resource.

14 Do not know.

b. Gully erosion (n=864)

% ✓'ed

3 Gully erosion is not controlled.

12 Gully erosion is minimal, controlled and often control methods fail.

56 Gully erosion sites are controlled but sometimes control methods fail.

19 All gully erosion sites are controlled with no gullies present.

10 Do not know.

c. Streambank erosion (n=865)

% ✓'ed

<1 Heavy streambank erosion occurring along most of stream bank. No buffer strip in place.

8 Erosion is occurring along most of the streambank, with little or no buffer strip in place.

45 There is slight streambank erosion occurring in limited places. A buffer strip is in place.

22 There is no streambank erosion occurring or not present.

16 Do not know.

8 Not applicable, no stream within 5 miles of residence

15. What is the source of your family's drinking water? *(Check all that apply.)* (n=895)

% ✓'ed

8 Bottled water

35 Rural/Municipal water ➔ **Do you filter your water?** (n=509)

Yes............ 36%

No............. 64%

73 Well water

🡻

% ✓'ed **How effectively is your well protected?** *(Check all that apply.)* (n=664)

59 Tight casing

66 Casing extended above ground

51 Well head sealed

69 Surface runoff does not reach area surrounding well

16.Do you know the name of the watershed where the majority of your crop acres are located? If so, name the watershed (n=318)

Cedar	Nishnabotna
Des Moines	Raccoon
Floyd	Skunk
Iowa	Turkey
Little Sioux	Wapsipinicon
Maquoketa	Other

17.Is this watershed on the government list of "impaired" watershed? (n=755)

Yes	9%
No	15%
Don't know	76%

18.Is there an organized water quality management program in your area or watershed for you? (n=850)

Yes	22%
No	18%
Don't know	61%

19. **Below is a series of statements about agriculture, farming and natural resources. Your views are important to us. Please circle the response that best indicates the level of your agreement or disagreement with each statement.**

	Strongly Disagree		Mildly Disagree	Mildly Agree		Strongly Agree
	Percentage					
a) I view my farm first and foremost as a business enterprise and secondly as a way of life (n=862)	3	4	9	30	24	29
b) The lifestyle of farming is very important to me (n=871)	1	1	2	16	32	49
c) Farming communities are great places to live (n=872)	1	1	1	11	25	61
d) In my community farmers who regularly make conservation improvements to their land are more respected than those who do not (n=866)	3	3	12	37	26	18
e) I feel it is important to leave my land in better shape for the next generation than I found it (n=875)	<1	<1	1	8	29	62
f) Managing environmental impacts on my farm is a very high priority even if it means slightly less profitability (n=874)	1	1	5	29	38	26
g) Lack of information about best production and conservation practices is a significant limitation to better land management (n=861)	7	11	23	31	19	10
h) My farm's profitability must also increase when I undertake new conservation work (n=860)	1	3	14	36	28	17
i) Planting areas around my farm with native trees and shrubs is important as it encourages native birds and animals (n=859)	7	9	18	34	17	15
j) Conservation work improves the value of my property (n=868)	1	2	9	28	32	28
k) Government incentives to farmers to undertake conservation practices is more a public investment than a reward to individual farm operators (n=869)	3	5	12	31	29	20
l) Government conservation programs such as CRP and WRP remove too much land out of production (n=865)	24	21	29	14	7	5
m) Improved conservation practices already undertaken by farmers are often not recognized by the general public (n=867)	1	3	6	25	39	26

20. Have you seen the Learning Farm logo in a field in your area? (n=853)

Yes	8%
No.............	81%
Not sure	11%

21. As a matter of public policy, which statement better reflects your views? (Circle response.) (n=807)

Providing green payments for being good stewards	53%
Providing commodity payments to ensure food production	42%
Both	3%
Neither	2%

22. What are the sources of information you use when making tillage and soil conservation decisions? From the list below, indicate the sources you use and the usefulness of these sources.

Information Source	Never Used %	Not Useful %	Of Some Use %	Very Useful %
Print Media				
Daily newspaper ....(n=817)	37	25	32	6
Weekly community newspaper ....(n=809)	36	30	29	4
Weekly farm newspaper.........................(n=813)	14	7	60	19
Farm magazines.....................................(n=846)	5	3	63	29
Fact sheet/brochures from commercial businesses and farm suppliers .... (n=827)	12	13	61	14
Fact sheet/brochures from ISU, USDA, and state agencies...(n=832)	7	5	58	30
Fact sheet/brochures from other organizations ....(n=790)	14	18	60	9
Electronic Media				
Commercial television ....(n=815)	32	37	27	4
Public television ....(n=821)	25	26	41	9
Commercial radio ....(n=810)	21	25	46	8
Public radio (WOI/WSUI) ....(n=804)	32	22	38	8
Internet websites....................................(n=797)	34	14	41	11
Public Meetings Events				
Extension or agricultural agency sponsored meetings ....(n=833)	9	8	53	29
Farm supplier sponsored meetings .... (n=827)	6	6	62	26
Field day or farm demonstration .... (n=836)	5	5	56	34

Individual Conversations

Private sector agronomist/ consultants	(n=813)	14	7	52	27
ISU/Extension/USDA agency staff	(n=821)	9	7	54	30
Other farmers..	(n=825)	4	5	56	34

23.When you seek information from other farmers whose advice do you find most helpful? *(Check all that apply.)* (n=894)

% ✓'ed	
53	Farmers who attend field days and other educational events
50	Neighbors/Friends at informal gatherings
20	Farmers who are in organizations/associations that I belong to
24	Farmers who work for agribusiness
68	Farmers who are especially progressive and successful

24.Finally, we would like information to help us describe the representativeness of our sample.

a. **Year of birth:** (n=961) Range = 1915-1983; Median = 1950; $\bar{x}$ = 1949; SD = 13

b. **Sex:** (n=951)

Female.. Male.. 9

c. **What is your highest level of education?** *(Circle response.)* (n=883)

Some high school..	5%
High school diploma or GED	36%
Some college/community college/technical training	35%
Bachelor degree (and higher)...	25%

d. **Please indicate the shortest distance between your residence and closest land you farm.** *(Circle response.)* (n=877)

Adjacent or less than one mile......................	83%
One to two miles	6%
More than two miles	11%

f. **Who (if anyone) is a partner in your operation?** *(Circle response.)* (n=848)

Sole proprietorship/no partner (other than spouse)	70%	Partner other relative	9%
Partner (parent/son/daughter)	20%	Partner non-relative	2%

g. **What percentage of your total household income is from the farm?** *(Circle response.)* (n=966)

Less than 10%	51% to 75%
11% to 30%	76% to 100%
31% to 50%	

h. **In next 5–10 years, which statement best describes your farming plans?** *(Circle response.)* (n=893)

	% ✓'ed
Continue farming in similar farming operation	55%
Significantly expand cropland	15%
Significantly expand livestock operation	8%
Scale back crop acres	3%
Scale back livestock numbers	4%
Exit or retire	56%

➔ **What will likely happen to your farmland?** (n=478)

Farm taken over by partner/relative	51%
Sell to another farmer	2%
Sell to highest bidder	6%
Other	11%
Don't know	31%

25. Comments you would like to share about the ISU Extension Learning Farms or ISU Agriculture and Natural Resources programs, in general.

(n=978) 12% made a comment, 88% made no comment

Thank you for completing this questionnaire. Fold, seal in business reply envelope and place in mail.