Farmers Creek Watershed Project
Watershed Improvement Review Board
Final Report

Project Name: Farmers Creek Watershed Project

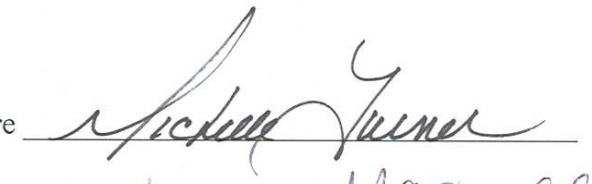
Project number: 5005-002 Farmers Creek

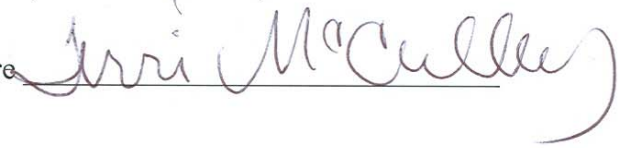
Soil and Water Conservation District: Jackson SWCD

Reporting period: January 2006 – December 2008

Report Preparation Date: December 23, 2008

Prepared by: Michelle Turner. Project Coordinator

Preparer's Signature 

Commissioner's Signature 

Project Background:

Farmers Creek is a moderately flowing stream that meanders for seventeen miles through central Jackson County, encompassing a watershed area of 30,590 acres. Due to nutrient loading and sedimentation, the stream was placed on Iowa's 303(d) list of Impaired Waters in 2002. The Farmers Creek Watershed Project was awarded a three year grant in 2005 to reduce nutrient and sediment loading by 40%, concentrating on critical areas along the stream corridor. The grant was extended through June 2009.

Funding through WIRB was requested for projects that could not be funded by Section 319 funds, WSPF, and WPF. The WIRB project was designed specifically to install innovative stream bank restoration and protection practices. Once installed or implemented, these practices and techniques could be used as demonstration sites. Projects could include jetties, weirs, cedar revetments, cattle crossings and exclusion fencing. Alternative watering systems such as sling pumps, nose pumps, solar pumps, and water rams could be used in conjunction with exclusion fencing, filter strips and riparian buffers.

Project Objectives and Practices Needed to Protect Water Quality:

In order to focus on practices that would protect the stream banks of Farmers Creek, the District Commissioners established the following project objectives:

- *Reduce stream bank erosion by excluding or limiting livestock access to the stream.* The goal was to install 3000 feet of fencing along the stream, building two cattle approaches, and installing one pumping station to demonstrate the feasibility of the practice.
- *Reduce stream bank erosion by planting filter strips or riparian tree plantings.* The goal was to seed three acres along the stream and to fund them if not eligible for CRP.
- *Stabilize eroding stream banks in critical areas.* The goal was to install 500 feet of cedar revetment for demonstration purposes and to protect 500 feet of stream bank by building weirs.

Plan of Work:

In order to meet the project objectives, a plan of operation was written to guide all project activities. The plan consisted of the following three categories:

1. **Administration of the WIRB division of the Farmers Creek Watershed Project.** Proficient management of the project was a result of cooperation between the watershed coordinator, Soil and Water District Conservation Commissioners, and other agencies involved. During the course of the project, all quarterly and annual reports were submitted in a timely fashion in the required

format. Potential project applications were reviewed and approved by the SWCD Commissioners. After approval, project construction was supervised. The budget was kept on the recommended spreadsheet and was kept current by the project coordinator.

2. **Conduct a public outreach campaign to educate and inform stakeholders about water quality issues and concerns.** Farmers Creek landowners were kept apprised of project progress through the project newsletter, the Tributary Tribune, which was distributed four times per year. The newsletter featured articles about successful conservation efforts in the watershed, general water quality issues, and current events. An average of one news release per month was published in two local newspapers, often supplemented by radio announcements on KMAQ. Well attended field days and demonstrations were held to highlight the advantages of alternative watering sources.
3. **Utilize assessment data to identify areas of need and to evaluate the effectiveness of practices.** The data collected from the Rapid Assessment of Stream Corridor Along Length (RASCAL) and DNR monitoring was used to identify and target areas that would benefit from WIRB funded practices. The sediment delivery calculator was used where applicable, but most practices did not directly affect sediment delivery.

Financial Accountability

Table 1:Watershed Improvement Funds

Grant Agreement Budget Line Item	Total Funds Approved ($)	Total Funds Expended ($)	Available funds($)
Supplies	100	95.20	4.80
Information/Education	100	94.50	5.50
Fencing	1,688	1,238.55	449.45
Stream Crossing	2,250	6,140.01	(3,890.01)
Alternate watering system	0	3,520.16	(3,520.16)
Equipment	750	496.25	253.75
Filter strip	1,350	0	1,350.00
Cedar Revetments	9,375	0	9,375.00
Stream Deflection Structures	13,125	0	13,125.00
Totals	28,738	11,584.67	17,153.33
Difference (Balance)			17,153.33

Table 2: Total Project Funding

Funding Source	Cash		In-Kind Contributions		Total	
	Approved Application Budget ($)	**Actual ($)**	**Approved Application Budget**	**Actual($)**	**Approved Application Budget ($)**	**Actual ($)**
WIRB	28,738	11,584.67			28,738	11,584.67
Landowner	9,513	3,632.78			9,513	3,632.78
	38,250	15,217.45			38,250	15,217.45

Watershed Improvement Fund contribution: Approved application budget: 75%
Actual: 76 %

Differences between approved application budget and actual amounts contributed:
In reference to Table 2, actual amounts are lower than originally predicted due to the fact that not all project goals were reached. Since approved standards and specifications were not available from NRCS for cedar revetments and weirs during the first year of the project, there was no opportunity to sell the designs to the landowners. Once we received trial specifications, it was too late to create a demonstration site. Also, many landowners were afraid that the cedars would let loose during floods and clog their flood gates. Riparian and filter strips were also a hard sell, because of the high quality crop ground they were in. Landowners also preferred the CRP option, since they would get yearly rental rates.

The Actual percentage of 76% (Table 2) will equal the targeted 75% cost share when the value of supplies and info/ed funds are subtracted from the total.

Environmental Accountability:
Although water quality monitoring was not stated as a component of this project, it is a component of the Farmers Creek Watershed Project as a whole. The project aims to reduce sediment and nutrient delivery by 40% over the length of the project agreement. The Sediment Delivery Calculator is utilized to estimate the efficiency of the practices implemented. The WIRB practices were not designed to reduce sediment delivery, so much as to protect stream banks. The exclusion fencing, however, did contribute to a 210 tons/year reduction in sediment delivery by keeping cattle from the area and stabilizing the stream banks.

Nutrient reductions are monitored by using IOWATER testing procedures once per month at two sampling sites and after heavy rain events. The exclusion fencing and cattle approaches installed should reduce nutrient delivery to the stream by distancing the livestock from the waterbody, but since there are no effective monitoring mechanisms in place, the conclusion is that a reduction of this kind can only be assumed. Additional monitoring of the creek will continue after the WIRB project is complete using the IOWATER methods, but the data collected will simply determine a baseline and make us aware of any unusual spikes in nutrient levels.

In addition to the assumed sediment and nutrient reduction, a positive environmental outcome of this project is the change in human behavior related to livestock watering systems. As a result of the Alternative Watering Field Day, one landowner decided to install cattle approaches and another implemented rotational grazing with a solar pump as the water source. We are also seeing an increase in inquiries by other producers as to the logistics of implementing these alternative watering sources.

BMP Implementation

The project coordinator and Commissioners originally planned on using the Rapid Assessment of Stream Corridor Along Length (RASCAL) to locate project sites. However, since the RASCAL was not yet complete at the time of submission, project locations and dollars were estimated. Once the RASCAL data was received, it was found that most of the cedar revetment sites were too deep for the practice. It was also determined that there were less crop acres along the stream that would be eligible for CRP filter strips and riparian tree plantings.

A second stumbling block occurred when the project was informed that cedar revetments could not be build unless they met NRCS specifications, but at that time, none existed. This resulted in a year of lost time, trying to come up with acceptable specifications. Once permission was granted by the area engineer to build the cedar revetments, two landowners considered their installation. A site was inspected for landowner George Goebel, but it was deemed too deep for the practice. Another site was surveyed by the area engineer for landowner Glen Bormann. After the heavy rains of 2008, he decided he would need at least a rip rap toe, and plans to build his streambank stabilization project in the spring of 2009. A Cedar Revetment Field Day was planned for May 2008 at Dennis Hankemeier's farm, but heavy rains and flooding resulted in the cancelation of the activity. The activity was intended to be a workshop for contractors interested in learning how to build the structures properly.

The first WIRB practices to be installed were cattle approaches to Farmers Creek by producer Bob Kremer. Kremer installed the two approaches with WIRB funding, and then built a third on his own. He also utilized WIRB dollars to put in1700 feet of exclusion fencing along the creek. After hosting a Pasture Walk at his farm to highlight alternative watering sources, Kremer's neighbor Larry Deppe applied for funding to install two cattle approaches on his farm. Deppe already had fencing in place, set up for occasional flash grazing. The implementation of these alternative watering projects influenced a third neighbor, Dawn Wagner, to utilize rotational grazing with a solar pump as the water source. This will allow her to rotate the cattle away from the stream.

In addition to cattle approaches, producer Bob Kremer also considered installing a weir in Farmers Creek. After discussing the placement and cost share options with the WIRB project coordinator and DNR Fisheries staff members, he decided the easiest route to go

was with DNR's design and footing the bill himself. This would also release him from any maintenance agreements which could prove costly in the future.

A newly installed cattle approach on the Deppe property gives livestock access to the stream at one point.

The picture shows one of three cattle approaches near completion on the Kremer farm. Exclusion fencing was installed on the sides of the approach and along the stream.

Progress toward Project Goals
In the table below, the goals stated in the original application are compared to the conservation practices that were completed.

Practices and Activities

Practice or Activity	Unit	Approved Application Goal	Accomplishments	Percent Completion
Fencing	Ft.	3,000	1700 ft	56%
Stream crossing/approach	No.	2	5	200%
Alternative Water System	No.	1	1	100%
Filter Strip	Acres	3	0	0
Cedar Revetments	Ft.	500	0	0
Stream Deflection	Ft.	500	0	0
Field days	No.	1	3	300%
News releases	No.	1	13	1300%

Public Relations
The WIRB project for Farmers Creek was launched with a public relations campaign designed to inform all watershed residents of the project goals and objectives. An informational article was published in the Maquoketa Sentinel Press and Bellevue Herald-Leader. This information was also repeatedly broadcast on KMAQ radio. The project coordinator promoted the project on the radio show "Just Talk", which provided a thirty minute opportunity to discuss water quality issues affecting the watershed and what property owners and producers could do to alleviate some of the problems by participating in the WIRB project. Informational exhibits were displayed at the Maquoketa Farm and Home Show, the Jackson County Fair, and the Hurstville Interpretive and Visitor Center. Project updates and practice guidelines also appeared in eight issues of the project's quarterly newsletter the Tributary Tribune, which is distributed to 150 landowners and stockholders. Special packets of informational brochures pertaining to alternative watering devices and in-stream deflection devices were sent to 25 livestock producers with property located along the stream.

Pasture Walk participants check out the action of the WIRB funded nose pump.

Fifty participants in the WIRB sponsored Field Day came to learn about alternative watering sources, such as this solar pump.

Page 10 Maquoketa Sentinel-Press, **Wednesday, March 1, 2006**

Watershed improvement efforts receive a boost

The Farmers Creek Watershed Project received a grant for $28,738 from the Watershed Improvement Board (WIRB), along with 16 other watershed improvement projects in 24 Iowa counties.

The WIRB fund was established in 2005 by the Iowa Legislature to help clean up impaired waters. The program implements one of the key recommendations from the Iowa Water Summit held in November 2003: to empower local watershed groups to take more leadership in water quality restoration efforts.

"The interest in this new (WIRB) program exceeds our expectations with 48 applications from local watershed groups coming in from all over the state," said Jim Gillespie, a WIRB member representing the Iowa Department of Agriculture and Land Stewardship.

Applicants requested a total of $12.7 million to help complete $30 million of locally-led watershed improvement work. The total budgeted by the Iowa Legislature in its first year of funding was $5 million.

The funded programs include eight projects that address agricultural sources of pollution, five address urban storm water pollution, two address failing septic systems and un-sewered communities, and one each that address coal mine reclamation and groundwater contamination from agricultural drainage wells.

The Farmers Creek Watershed Project will use the money to install practices designed to keep cattle from having direct access to the stream, a practice which erodes stream banks and contributes excessive solids and nutrients into the water. Innovative practices to be cost shared will include fencing, cattle crossings, pumping stations, nose pumps, and also structures within the streams such as jetties, weirs and cedar revetments. These projects will be used as demonstration sites to encourage other livestock producers to follow suit.

Practices will be implemented at a 75 percent cost share, with a required maintenance agreement for various years, depending on the practice. Landowners in Farmers Creek Watershed who are interested in these practices should contact project coordinator Michelle Turner at (563) 652-2337, ext. 3, at the Jackson Soil and Water Conservation District and NRCS office in Maquoketa.

The Farmers Creek Watershed Project is funded in part by the Iowa Department of Agriculture and Land Stewardship, Division of Soil Conservation WPF and WSPF, Iowa DNR and Section 319 of the Clean Water Act.

Program Accountability

Implementation of the WIRB project was plagued with set backs. Designed as an "innovative" project, the practices offered and available for cost share are commonly used in other states, but not in Iowa. Because of the agreements between Soil and Water Conservation Districts and the Natural Resources Conservation Service, all practices had to meet approved NRCS specifications. Unfortunately, cedar revetments did not have any approved specifications, so the coordinator had to find acceptable standards. Standards and specifications were collected from various conservation agencies, including Minnesota, Missouri, Kansas, Kentucky, Vermont, New Jersey, and Alaska. The specifications were sent to Mark Jensen, State NRCS Engineer. He made a directive that Jackson and Jones Counties could install cedar revetments for demonstration purposes, but that specifications would not be adopted until these practices had been in place and proven effective after a five year trial period. This concession was reached after a year of research and petitioning, thereby resulting in a year of lost time for the project. The SWCD Commissioners and the WIRB board agreed in July 2007 to extend the grant period to December 31, 2008 to make up for lost time.