

Cleaning up Hewitt Creek: Longitudinal study of northeast Iowa producer behavior and attitudes when using the Environmental Performance-based Management Model

Jean McGuire and Lois Wright Morton, Department of Sociology, Iowa State University

Background

In 2002, Iowa Department of Natural Resources identified the lower 4.4 miles of Hickory Creek (within the Hewitt Creek Watershed) as "partially supporting" of aquatic life and listed it on Iowa's EPA Section 303(d) impaired waters list. Local farmers were angry and anxious to find ways to "keep the DNR off our back...and help improve our water quality."

In 2004, Iowa State University received funding from the USDA National Integrated Water Quality Program to undertake an experimental citizen-farmer intervention. ISU Extension agriculturalists invited Hewitt Creek farmers to pilot test the project, "Educational Program to Increase Citizens' Responsibility for Management of Agricultural Watersheds." The partnership resulted in the development of the Performance-based Environmental Management Model.



Methods

A longitudinal study was performed for this project to evaluate the effectiveness of the Performance-based Environment Management Model. At the beginning of the project, in the summer of 2005, ten farmers, staff members and funders were interviewed about their attitudes on farm management practices that address water quality and soil conservation issues.

In December 2008 the original group was interviewed again about their experience with the project to reveal how their attitudes and management practices had changed. Also in 2008, three participants who joined the project after 2005 were interviewed about their experience with the project.

This material is based upon work supported by the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, under Agreement No. 2004-51130-002249. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.



Performance-based Model

A six step circular model was used to set and attain goals that are environmentally sound and economically practical for the watershed. Citizens together decide on incentives for management practices and evaluation of soil condition, nitrogen, and phosphorus levels. Farm operators learn to track and interpret performance measures so they can revise their goals and practices for continued improvement.

The Hewitt Creek Watershed covers about 23,000 acres and is located within the Maquoketa Watershed in Dubuque County. It is home to the farm featured in the movie "Field of Dreams." Nearly 70 percent of the farmers in the watershed participated in the project.



Awareness Four to six watershed residents are contacted and are asked to act as catalysts in their watershed. This group meets with others to identify water issues and options for solving them.

2005 "I didn't know there was a problem, 'til this one started. I don't hear anybody complaining about it. I think twenty years ago they were probably dirtier than they are now."

2008 "I'm very glad I got involved. I was hesitant at first, but I'm more than overwhelmed with and glad that I got involved because it was very well worth my time."

Assessment Producers and other residents work together to monitor their watershed and select performance-based activities and practices that help them manage sediment, excess nutrients and pesticides, and other pollutants in their lakes and streams.

2005 "So if they find out they're putting 22 tons of manure out there an acre instead of what they thought, eight or ten, they're obviously going to change what they're doing."

2008 "We had some other neighboring farmers who said, "How come you only spread fertilizer on half of that field, and you didn't spread fertilizer on the other half? I explained to them what I did then as a test. You know what? They all come back and wanted to know what I found out."

Goals Set watershed-wide and individual farm management goals.

2005 "Long term, I would say is ten years, lower numbers in the creeks, definitely would be awesome, to see them coming down any would be an improvement."

2008 "We're much more careful where the water runs, how the water gets there; so we need to put some waterways in. So we're trying to be more land friendly again on that end of the aspects of things."



Targeting The group prioritizes management practices and activities that will help meet performance goals, and be locally acceptable and practical.

2005 "We have a good core group, and we probably don't agree on everything, but we try to learn from each individual's activities. And if we can show the other guys that we can do this with the lesser amount...give us a try. Because none of us want to go out there and drink nitrates in the water."

2008 "The nice thing about it – other farmers were doing some other things, so you don't have to be the guinea pig on everything by yourself. And then so everybody did something a little different, and all this information was gathered."

Performance Financial incentives were used to achieve specific performance goals, as well as implementing individual management practices. These practices and methods became locally known and accepted.

2005 "My vision would be every farmer in the Hewitt creek watershed doing a practice, maybe, at least one practice on every farm. That's kind of my thing is if every farmer would just try something to improve."

2008 "That little incentive you're getting is, instead of going to school and having to pay for this education, they're actually paying you for this minor education that grows into a whole lot."

Evaluation The cycle comes full circle with the evaluation of performance measures against individual and group watershed goals. Continuous, systematic monitoring of performance indexes and tests allows operators to adjust management practices for continued improvement.

2005 "I think about Hewitt Creek . . . it didn't happen overnight, and it's not gonna get changed overnight. But if we keep going, keep trying, we'll get things done."

2008 "My dad, he's not in this watershed and my brother-in-law isn't... my brother, and they all farm, and they're doing things different because of what we found out and from what I did and what other people in this here watershed did. So they're doing some of their management practices different also."

Project Accomplishments

The Hewitt Creek Watershed project resulted in:

- Widespread watershed resident participation
- Development of a watershed community
- Significant reductions in the amount of sediments and nutrients delivered to local surface waters
- Improved fish and macro-invertebrate populations in Hickory Creek.

The funding for the incentive and technical support of this project ended Dec. 31, 2008. However, while the participants feel the project has been a success, they are seeking other sources of funds that will allow them to continue using the Performance-based Environmental Management Model to continue improving the water quality in their watershed.

The passion and energy Hewitt Creek farmers have invested in their watershed has not only made this project a success, but what they have learned has spilled over into neighboring watersheds. As a result, new citizen-farmer watershed groups are forming using the model piloted by the Hewitt Creek group.

