



USDA-CSREES 2006 National Water Quality Conference

[Watershed-Scale Evaluation of Soil and Water Conservation Practices in the Goodwater Creek](#)

In spite of large amounts of funding directed toward the implementation of conservation practices on agricultural land, pesticide, nutrient, and sediment loadings to streams are still high in the Midwestern U.S. claypan region where surface water is the primary source of drinking water. The purpose of this presentation is to illustrate our approach to understand how physical, technical, social, and economic factors interact to make certain agricultural practices effective in improving water quality. The overall objective of our research is to identify the interactions among conservation practices, their biophysical settings, and the socio/economic constraints in terms of the effectiveness of these practices to improve water quality in the Goodwater Creek Watershed. Specific objectives will identify crop and crop management history in the watershed; detect trends in existing water quality data; utilize the Soil and Water Assessment Tool to analyze the impacts of land use and management practices on water quality during the pre- and post-BMP implementation periods; and adapt SWAT to project the environmental impacts from implementing BMPs on specific landscape positions. Additional objectives include model and analyze the economic impacts from implementation of BMPs on crop yields and economic returns; identify the economic and sociological factors that lead a farm manager to adopt a management practice; optimize the types, numbers, and locations of BMPs that need to be implemented to achieve a desirable water quality in the stream; and develop an optimum water quality sampling design. The project will result in a watershed plan that integrates the findings of this research to address the stream water quality issues and the goals of the watershed stakeholders. Efforts will be conducted to develop and distribute materials and a curriculum for training professionals in reaching farm operators regarding their role in reducing and controlling water quality degradation and for educating local stakeholders.

Author: Claire Baffaut

Coauthor(s): Stephen H. Anderson Robert Broz Laura McCann William B. Kurtz Robert Lerch J. Sandy Rikoon John Sadler

