



**Title:** Paired Watershed Studies for Nutrient Reductions in the Minnesota River basin

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**Organization:** University of Minnesota

**State:** MN      **Region:** Great Lakes

**Year of Funding:** 2001

**Theme:** Watershed Management

**Situation:** Farmers want to become more involved in the process of making decisions about how to improve water quality in agricultural areas. Agency personnel faced with the task of implementing practices to improve water quality and maintain agricultural productivity want to know how to accelerate the adoption of these practices. This project involves a coalition of producers, state and county agency personnel, and researchers and extension faculty at the University of Minnesota.

**Objectives:** Our objectives for the project are to 1) Accelerate the voluntary adoption of BMPs in the Minnesota River basin, 2) Achieve measurable improvements in water quality using a paired watershed approach, 3) Evaluate the effectiveness of farmer-selected BMPs to improve water quality, and 4) Disseminate farmer led and farmer sanctioned water quality initiatives in the Minnesota River basin.

**Methods:** Our approach involves two agricultural watersheds in Nicollet County, Minnesota. At the mouth of each watershed we have collected water quality samples for the last two years. All farmers in the two watersheds with over 40 ac of land have been visited in person and surveyed for two years to determine their farm management practices. Farmers were shown the results of both water quality sampling and farmer surveys and asked what types of changes in management they would be willing to make to improve water quality. During the subsequent discussion, we answered many questions the farmers had about tillage, fertilizer, manure, and tile drain management using information provided by extension and research at the University of Minnesota. BMPs were implemented at end of the first year on about 40% of the area in one watershed (treated), no changes were made in the other (control) watershed. BMPs are being implemented on a larger area of the treated watershed at the end of the second year.

**Partnerships:** Our project partners include two farmers from the watershed who help encourage other farmers to participate in the project. We are also working with the local agronomist from the co-op, who provides management information about the farms and encourages farmer participation. Two other farmers help advise us on approaches used in the project. County personnel from the Soil and Water Conservation District and Environmental Services are working with us to provide guidance and funding to farmers for implementation of BMPs. State personnel with the Department of Agriculture are assisting with project guidance and logistics.

**Research:** The project integrates research, education and outreach. Research involves collection of water quality data and farm survey data. Education and outreach involves working directly with farmers and the co-op agronomist to discuss farm management alternatives that are based on data from the water quality sampling and farm surveys. Other research and extension information from the University of Minnesota relevant to water quality and farm production are used in education and outreach activities.

**Resources:** Nicollet county, the state Department of Agriculture and the Soil and Water Conservation District are providing or facilitating funding to pay farmers for implementing BMPs.

**Results:** When shown summaries of farmer survey data and water quality data, we have found that farmers are willing to make changes in their management practices to improve water quality. Their willingness varies depending on their age, farm size, production characteristics, and attitudes of their closest relatives and friends. Each farmer has a different willingness to make changes depending on the amount of money paid to make these changes. Personal contact with farmers is essential to determine what kinds of changes are acceptable. It is easier to promote increases in crop residue cover than improvements in nutrient management, primarily because fertilizer dealers more heavily influence nutrient management decisions, and because loss of topsoil is very visible for farmers with poor residue cover. Thus far, farmers in the project have expressed a wish to downplay the visibility of the project with other farmers and the public until impacts of the adoption of BMPs on water quality are more clearly known. As a result, we have not yet begun to give the project widespread publicity or attempt outreach efforts to people outside the watershed.



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