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Outreach and the adoption of conservation practices by farmers

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Increased awareness of the contributions of nonpoint source runoff to the degradation of water quality in the Mississippi River and Gulf of Mexico emphasizes the need to implement conservation practices that effectively reduce nutrient export from agricultural lands. Reduction of nutrient loads to the Gulf of Mexico to levels that will significantly impact the hypoxic zone will require conservation actions targeted specifically within the Mississippi River Basin states. Because nonpoint source nutrient runoff from agricultural lands is not regulated, any adoption of conservation practices will necessarily be voluntary in nature. Thus, it is important to understand obstacles and incentives that influence conservation actions among farmers specific to the agricultural watersheds of the Midwest. Surveys have been conducted in Midwestern agricultural watersheds to better understand what factors influence farmers to voluntarily adopt conservation practices. Our approach is unique in that we used a multiyear survey to assess how varying intensity levels of outreach influenced farmers' perceptions and adoption of conservation practices. Specific goals of the study were to document (1) general farming methods used by area farmers, (2) changes in farm and conservation practices over four years, and (3) incentives and disincentives that influenced farmers' decisions to enroll in USDA cost-share programs and implement best management practices.

Results suggest that more intensive outreach efforts such as one-on-one landowner visits, localized workshops, and tours can increase adoption of conservation practices. Technical and financial assistance that did not interfere with planting and harvesting were major incentives among farmers to participate in cost-share programs; whereas, disincentives were associated with programmatic changes and complex application processes. High use of the USDA Natural Resources Conservation Service by farmers in our study suggests that outreach efforts designed to increase the capacity of conservation professionals to provide assistance can have positive effects on implementation of conservation practices. However, staff time and economic costs associated with outreach and implementation can be substantial. Outreach teams comprised of stakeholders and conservation agency staff may provide a forum for interchange of conservation ideas among farmers. There remains a need to test the concept that these integrated teams can maximize outreach effectiveness and reduce demands on staff time of local conservation agencies.

Conflicting goals of environmental protection and farming efficiency are especially apparent with fall application of nitrogen fertilizer. Fall application was a common practice throughout the study and will likely continue to be used by farmers to minimize time demands in the spring, reduce soil compaction, and prevent weather-related delays during spring planting. Mitigation of nonpoint runoff will require more effective management of nitrogen application rates and timing in order to conserve freshwater resources in Midwestern agricultural landscapes and downstream waters. However, the assumption that fall application will likely continue on some level emphasizes the need to encourage best management practices such as wetlands, cover crops, and nutrient management to reduce nitrogen losses to surface waters.

Survey results revealed a need for increased awareness and implementation of conservation practices specific to reducing agricultural runoff from tile-drained sources. Throughout the study, farmers were aware of excessive sediment and pollution in the nearby Mackinaw River and considered reductions in streambank erosion and surface water runoff to be appropriate solutions. However, large sources of agricultural runoff enter the river through underground tile drainage systems that transport substantial amounts of nitrogen and phosphorus directly from farmlands to nearby streams, bypassing surface water retention practices. Targeted wetland restoration is a promising approach to effectively reduce nutrient runoff from heavily tile-drained agricultural lands. Our study identified the need for increased outreach that promotes awareness of wetlands as an effective method to mitigate tiled-drained agricultural runoff. Targeted outreach and implementation of conservation programs are necessary for achieving the goal of reducing nutrient exports to the Mississippi River and Gulf of Mexico from Midwestern agricultural lands.

For further information see the full paper on pages 304-315 of this issue (Lemke et al. 2010).

REFERENCES

Lemke, A.M., T.T. Lindenbaum, W.L. Perry, M.E. Herbert, T.H. Tear, and J.R. Herkert. 2010. Effects of outreach on the awareness and adoption of conservation practices by farmers in two agricultural watersheds of the Mackinaw River, Illinois. Journal of Soil and Water Conservation 65(5): 304–315.

Wetland construction on a family farm near Lexington, Illinois. Photo courtesy of Tim Lindenbaum, The Nature Conservancy.