



2008 USDA-CSREES National Water Conference
Sparks, NV

Best Management Practices in the CEAP Goodwater Creek Watershed: What, Where, Why, and How Much?

Claire Baffault, Steve H. Anderson, Robert N. Lerch, Bridget E. Murphy, E. John Sadler, J. Sandy Rikoon

Abstract Text:

Continuation of conservation funding may depend upon demonstration that past funded projects have contributed to improvement of water quality or reduction of pollutant loadings from agricultural sources. In the Goodwater Creek watershed, a 7,250 ha sub-watershed of the Mark Twain Lake watershed in Northeast Missouri, 2000 acres of cropland or 15% of the watershed have been protected by cost-shared grassed waterways and terraces from 1990 to 2003. In addition, some land has been converted to CRP and riparian buffers and nutrient management plans have been put in place for some areas. The purpose of this presentation is to provide answers to why farmers have decided to implement these practices and how much is needed to reduce pesticide and nutrient loadings transported by Goodwater Creek.

Structured interviews were conducted with 18 farm operators in the watershed to understand the factors that influence their decision-making and motivations for implementing practices. Simultaneously, water quality data were analyzed to detect trends and a SWAT model was developed to evaluate the impact of implemented practices and management decisions. Bio-physical factors such as weed pressure, soil tests, or soil conditions and external factors such as cost, weather or label instructions were found to influence different parts of the decision making process regarding fertilizer and pesticide management. For implementation of structural best management practices such as grassed waterways, evidence of land degradation and personal satisfaction were key factors. In spite of these implemented conservation efforts, no definitive trends could be detected in pollutant loadings out of the watershed. Modeling was used to determine the combined effect of these efforts as affected by weather trends and changes in cropping systems and crop distributions. We will report progress made to date to determine if additional and better targeting of conservation efforts would be beneficial in this watershed.

Impact Statement: