



USDA-CSREES 2007 National Water Quality Conference

Farmers as Producers of Clean Water: Providing Economic Incentives for Reducing Agricultural Non-Point Source Pollution

This presentation will describe contract provisions, payment schedule and technical assistance that have been developed to conduct a field experiment involving performance-based economic incentives for non-point source pollution control. The purpose of this research project is to investigate how to increase economic efficiency and farmer acceptability of water quality protection in the context of agriculture-related nonpoint source pollution in West Virginia, USA. By paying farmers to produce clean water, best management practices will be converted from a threat to farm income to a potential income opportunity. This research project will include two, one year unilateral contracts for watershed level payments. Contract provisions have been designed to encourage farmer involvement and participation. Clean water payments will be based on the novel use of an index watershed to calibrate water quality improvements on the treatment watershed with quality changes related to stochastic weather events. To determine appropriate prices for clean water, a non-linear GAMS optimization model was used to estimate what prices would have to be provided in order to induce farmers to implement best management practices on cropland. A set of six prices was computed based on season and three rainfall regimes. Using these prices, residents of a 2800 hectare watershed will be offered monthly payments starting in January 2007 for the surface water flowing from their watershed, with payment levels indexed for loadings of nitrate-N. Upstream, downstream, and index watershed monitoring will be used to determine changes in water quantity and quality as a basis for payments. Prior to payment implementation, technical assistance will be provided to farmers to ensure that they have the knowledge necessary to implement conservation measures they deem cost-effective. Monthly payments will be divided among participating farmers based on an allocation formula which they devise. Surveys of farmers will be used to assess behavioral changes both within and outside the treatment watershed.

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