



Evaluating analytic and risk assessment tools in agricultural fields of Mississippi

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Abstract

Nutrient and sediment runoff from agricultural fields is a critical problem associated with impairment of waterbodies in Mississippi and has generated a need to identify best nutrient management practices that minimize sediment and nutrient losses from fields, mitigating their contribution to a low-oxygen environment in the Gulf of Mexico. Environmentally safe and cost-effective implementation of quantified nutrient load reductions would require analysis of site-specific monitored water quality data that help producers to identify the most appropriate conservation practices for protecting or improving water quality. But lack of information in many regions regarding edge of the field and watershed monitoring for water quality and quantity and their associated costs, has promoted the use of qualitative and quantitative risk assessment models or tools to explore actions and policy alternatives for managing both water quality and quantity from intensive agricultural fields. National, regional and State nutrient reduction initiatives have indicated that the evaluation and selection of analytical tools (or risk assessment models) needs to be included as one of the strategies for designing, siting and assessing potential reductions from multiple management practices implemented within the Mississippi Delta, and subsequently, the Mississippi Upland and Mississippi Coastal regions. A Conservation Innovation Grant (CIG) project is being conducted to determine the existent need to assess and enhance the ability of existing risk assessment tools for improved cost-effectiveness of conservation practices, and enhance stakeholder's ability to make appropriate resource conservation decisions supported through such tools. This project supports specifications in the recently revised USDA-NRCS nutrient management standard (590) and state nutrient criteria. Preliminary results are presented on research to test and validate five quantitative (APEX, NTT, APLE, N-Index, and RUSLE2) and three qualitative (P-Index, N Leaching Index, WQ Index) risk assessment tools in fields from the Mississippi Delta and the poultry production area in South Mississippi.