



USDA-CSREES 2005 National Water Quality Conference

Use of the Integrated Pollution Source Inventory (IPSI) Model for Targeted Watershed Improvement

Abstract: Water quality in the Pond Creek watershed (TN0601020213) is negatively impacted by small and mid-sized dairy and beef operations. It is on the Tennessee 303(d) list for pathogens and nutrients and is a leading candidate for the first agricultural TMDL in Tennessee. A cooperative demonstration watershed project to control NPS polluted run-off has been implemented.

Objectives:

- oIdentify pollution sources to target efforts.
- oEducate landowners and the public about pollution sources, BMPs, and their environmental/economic impacts.
- oIdentify and implement BMPs to reduce pathogen and nutrient loadings.
- oUltimately, improve water quality.

Methods:

- oInventory pollution sources in the watershed using aerial infrared photography.
- oDevelop GIS data and maps on land uses, erosion, livestock, buffers, stream banks and impervious surfaces.
- oTarget efforts to "hot spots" beginning in the upper reaches of the watershed.
- oConduct field days and other educational activities.
- oEvaluate economic and water quality impacts.

Partnerships:

- oTennessee Department of Agriculture (TDA)
- oTennessee Department of Environment and Conservation (TDEC)
- oTennessee Valley Authority (TVA)
- oUSDA-NRCS
- oUSEPA

Resources:

- oTDA - \$14,000
- oTDEC - water quality analysis
- oTVA - \$25,000 plus aerial photography and photo interpretation
- oUSDA/NRCS - BMP cost-share, technical assistance
- oUSEPA - \$41,411 (319) plus \$150,000 (104)
- oUT - Economic analysis, technical assistance, management

Integration of Research, Teaching, and Extension:

- oResearch - water sampling, economic analysis of BMPs
- oTeaching - preliminary interpretation of IPSI data (capstone senior course project)
- oExtension - project management and coordination, IPSI analysis, stakeholder education (BMP calendar, watershed newsletter, field days, meetings)

Results: The project is ongoing. The pollution inventory is completed; BMPs are

being installed; water sampling and analysis is ongoing; and economic analysis is beginning.

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