# Use of the Integrated Pollution Source Identification (IPSI) Model to Identify Potential BMPs for Watershed Improvement

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## The Problem

•In 2002, 21.1 miles of Pond Creek, 7.2 miles Mud Creek and 7.3 miles of Greasy Creek were listed on 303(d) list of impaired waters for “pathogens and nutrients” from “pasture grazing”.


Pond Creek: location and main agricultural activities

## The Challenge

• Clean up the water!

•Pond Creek is a small (23,579 acres) rural watershed typical of “ridge and valley” landscape (wide floodplain, surrounded by steep ridges) in east Tennessee

•No identifiable point sources of pollution; no urban centers

•Most agricultural land use is in the floodplain: beef pasture and dairy operations. Floodplain prone to seasonal flooding. Many dairy producers rely on federal funding for manure storage improvements.

## Addressing Water Quality Issues: The Strategy

Assess land-use, identify potential sources of non-point source pollution and estimate pollutant loading

Suggest appropriate and cost effective best management practices (BMPs) and encourage their implementation

## Summary

Over $290,000 in funding has been committed by four agencies to support activities of a watershed coordinator to assist producers with the implementation of BMPs

Focus on nutrient management plans and pasture improvement as BMPs (compare cost effectiveness)

The Problem: plowed fields, low residue crops, poor and overgrazed

The Solution: hay fields, good pasture, vegetative buffer strips and fencing

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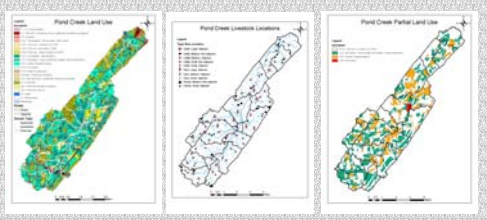
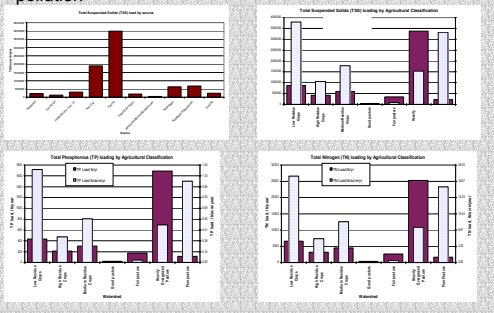
## Identifying Best Management Practices

Step 1: Develop land use inventory from color infrared photography using the Tennessee Valley Authority Integrated Pollution Source Identification (IPSI) model



Step 2: Estimate sediment and nutrient loads from revised universal soil loss equation (RUSLE). Pastures and low residue crops identified as major sources of non-point pollution



Step 3: Implement BMPs improve pastures and increase residue cover