Watershed-Scale Evaluation of Soil and Water Conservation Practices in the Goodwater Creek Watershed

Poster Number

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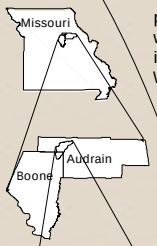
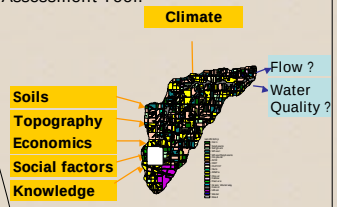
The Objectives

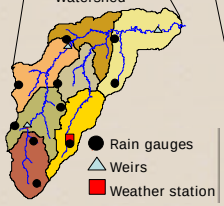
Goal: How do land forms, soils, climate, economic constraints, human factors, and agricultural practices interact to improve water quality?

The effect of climate, crops, and management practices is imperfectly known at the field and watershed level. What is known is embodied in watershed models such as the Soil and Water Assessment Tool.





Goodwater Creek Watershed



Objective 1: How do climate, soils, slopes, education, economics, and social factors affect the crop rotations and the use and placement of agricultural practices?

Objective 2: What are the watershed-scale water quality benefits from:

- grassed waterways,
- terraces,
- nutrient and pesticide management plans,
- filter strips and buffers,
- CRP, and
- grade stabilization structures?

The Process

Survey

Assess what factors have an impact in the decision process of adopting and maintaining a given practice and of planting a certain crop.

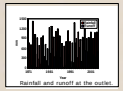
Education and outreach: field days, place mats, demonstration sites.

Inform and educate the actors in the watershed: land managers, elected officials, citizens, and technical resources personnel.

Modeling and GIS Research

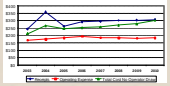
Identify critical locations for BMPs

Data Analysis



Detect trends in flow and water quality and correlate them with land use changes and adoption of management practices.

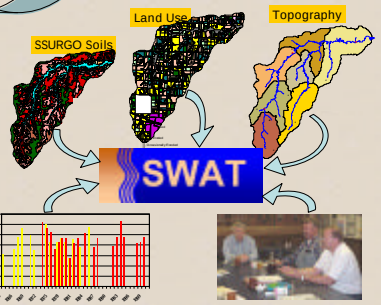
Economic Analyses



Baseline costs and returns per acre
Average of nine farms producing corn, soybeans, wheat, and/or milo

Assess the farm-scale economic impact of implementing best management practices

SWAT Modeling



Analyze the impact of land use and management practices on water quality at the watershed level.

Steering Committee

Develop a watershed management plan

The Outputs

Increased knowledge
A watershed model
Educational materials
A watershed plan

A comprehensive Watershed Management Plan that will detail:

- watershed characteristics,
- water quality problems (pollutants and their sources), and
- a set of projects agreed upon by the steering committee to address the needs of the watershed.

A curriculum and educational materials for:

- training professionals to reach farm operators regarding their role in reducing and controlling water quality degradation, and
- educating local stakeholders.

An optimum water quality sampling design that will detail:

- the location of the monitoring stations,
- the frequency of the monitoring, and
- the duration of the monitoring.

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