



**Title:** Integrated Systems Approach to Watershed Management

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**Organization:** University of Missouri

**State:** MO    **Region:** Heartland

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**Theme:** Watershed Management

**Situation:** Missouri has over 100 lakes used as public drinking water reservoirs. Many of these lakes are part of a watershed that has extensive agricultural production. Committees have been developed between urban and rural residents to develop management strategies that will control, reduce or eliminate potential. Watershed management plans are based on the farming system used, crops raised, weather conditions and economic viability for the producer in implementing the practices.

**Objectives:** Project objectives are: determine effective management practices in reducing run-off, verifying a computer-based model, and use of model as a decision tool. Successful outcomes will be the formation of a locally led watershed committee, adoption of management practices and use of SWAT as a Decision support tool.

**Methods:** Field days, demonstration sites and water monitoring will show results of how practices have reduced pesticide runoff. SWAT model will be calibrated. The model will be used as a resource tool for communities developing watershed management plans. Products developed will be locally developed watershed management plans, verification of SWAT model and use of the model as a decision support tool for other watershed management plans.

**Partnerships:** Monroe City and Vandalia have locally driven watershed committees working with resource personnel from Extension, NRCS, SWCD, Department of Conservation, the Department of Natural Resources and Mo. Corn Growers.

**Research:** Collected data and effectiveness of accurately predicting model outcome demonstrates the research component. Teaching occurs through the use of graduate students to work with the model development and verification and through the educational programming for producers on use of the model and practice selection that are effective in reducing pesticide runoff. Field days and educational programs have been offered to assist producers with management decisions.

**Resources:** EQIP and Soil and Water funds used for demonstration projects. Professionals taught Integrated Pest Management and assisted with field days. An EPA/DNR 319 project provided support for meetings and printing of watershed management plans.

**Results:** Local citizens developed watershed committees and developed plans. Field days and demonstration sites were used to promote affective management. The SWAT model will be verified and used as a tool for selection of BMPs. A change of behavior by the local rural producers shows a change of attitude and social action. Decisions are made that promote environmental stewardship and economic viability.



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