

Kansas Water Resources Institute



KWRI Projects:

Water Monitoring Sensor

Conserving and protecting water resources requires effective measurement tools to determine pollutants in surface and ground water. Concentrations of sediment, nutrients, and pesticides can change substantially over short periods of time. The biggest limitation in obtaining accurate real-time water quality information is current sensor technology. Therefore, scientists from Kansas State University and USGS are developing a new sensor that will continuously monitor these pollutants in streams and lakes. Principal Investigators: Naiqian Zhang, Gerard Kluitenberg and Philip Barnes, Kansas State University; and Andrew Ziegler, USGS.

Protecting the High Plains Aquifer

Protecting usable groundwater from potential sources of contamination is an important issue in areas of Kansas with increasingly limited groundwater resources. Ford County will be the site for a long term irrigation project using treated municipal and meatpacking plant wastewater. Leaching rates of nitrogen will be estimated using modeling in combination with field and laboratory measurements. Results from this study will assist in determining the depth of contaminant leaching towards the High Plains aquifer in an effort to preserve the integrity and purity of the aquifer. Principal investigators: Marios Sophocleous and Margaret Townsend, University of Kansas; Tom Wilson, Kansas State University; Fred Vocasek, Servi-Tech Agri/Environmental Consulting; and John Zupancic, Agronomy Solutions LCC.

Efficient Use of Irrigation Water Resources

Developing a computerized program for farmers to use in their decision process regarding the best use of groundwater supplies is the focus of Kansas State University researchers. Due to an increasingly limited water supply and changes in water policy, irrigators will need to consider shifts in cropping patterns. A new modeling program will evaluate alternative crops and cropping practices in order to determine the best combination for the most efficient use of irrigation water resources. Principal Investigators: Norman Klocke, Loyd Stone, Troy Dumler, and Gary Clark, Kansas State University.

Economic Value of Water Rights

A governmental policy instrument for the reduction of water usage from the Ogallala Aquifer is the voluntary Irrigation Transition Assistance Program. Through this policy, water rights in the Ogallala region of western Kansas will be purchased and permanently retired. In order to implement this policy, Kansas State University researchers are providing economic models capable of estimating the fair market value of water rights. These models could be used in the currently planned and future water rights buyout program. Principal Investigators: Bill Golden, Terry Kastens, Kevin Dhuyvetter, and Jeff Peterson, Kansas State University.

Phreatophyte Depletion of Groundwater

The relationship between stream flow and the stream aquifer is thought to be a major factor for quantity of stream flow. Uncontrolled phreatophyte (a long rooted plant that absorbs its water from the aquifer) growth drains the underlying aquifer, and therefore, disturbs stream flow. This research is directed at the development of a practical field method used to study the quantity of phreatophyte consumption of groundwater and assess the water savings gained by phreatophyte control. Principal Investigators: James Butler, and David Whittemore, University of Kansas; and Gerard Kluitenberg, Kansas State University.



Kansas State University

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service
www.oznet.ksu.edu

KWRI Mission

The Kansas Water Resource Institute develops and supports research on high priority water resource problems and objectives, as identified through the state water planning process. It is also designed to facilitate effective communication between water resources professionals and to foster the dissemination and application of research results. For more information, contact: William Hargrove, Director, 44 Waters Hall, KSU, Manhattan, KS 66506 (785)532-7103.