

# **Evaluation of Policy Options Aimed at Achieving a Reduction in Groundwater Consumption in Western Kansas**

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## **Justification:**

In order to reduce water consumption and extend the economic life of the Ogallala aquifer two policy alternatives are often considered: cost-share programs aimed at increasing irrigation efficiency through the adoption of more efficient irrigation technology and policies that permanently retire water rights. In order to make informed choices, policy makers and stakeholders in Kansas need scientifically based information on water savings, as well as program costs and benefits

## **Objectives:**

This research has three primary objectives. 1) Quantify and explain the change in water-use following the adoption of new technology, funded by the current cost share program. This will make it possible to compute the reduction in the gross amount of water pumped per dollar of taxpayer expenditure on cost share programs. 2) Identify and quantify the impact of the factors determining water consumption and the value of water. This will allow the estimation of the minimum Conservation Reserve Enhancement Program (CREP) payment required to insure program participation. 3) Identify policies necessary to insure water conservation policies avoid unintended consequences.

## **Progress to date:**

This research suggests that the adoption of efficient irrigation technology provides financial benefits to the producer but, in all likelihood, will not reduce groundwater consumption. After adoption, producers tend to use the 'saved' water to increase yield, produce more water intensive crops, or increase total acres. The state expended \$2.7 million in taxpayer dollars and did not achieve a significant reduction in groundwater usage. The research suggests that the value of water rights depends on the historical water-use, spatial location, soil quality, and irrigation technology; but does not currently depend on the seniority level of the water right.

## **Impacts:**

The State has incorporated and cited this research in their CREP proposal to the USDA, as well as the basis for discontinuing the cost-share program, and has requested portions of this research be entered as expert testimony. Papers and presentations have been made at the 2007 and 2008 CSREES National Water Quality Conference, and the 2006 and 2007 Kansas State University Risk and Profit Conference. A portion of this research has been published as Kansas State University Agricultural Experiment Station and Cooperative Extension Service, Staff Paper No. 06-03