WATER SAVINGS AND IMPACTS OF IRRIGATED CONSERVATION STRATEGIES

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ABSTRACT

Irrigation from the Ogallala aquifer in the northern region of Texas accounts for nearly 90% of all water use in the region. The water planning group within that region determined that an analysis of water management strategies that could be potentially implemented over the next 60 years to reduce or slow the rate of irrigation water from the Ogallala aquifer to meet regional water planning goals was warranted. The assessment of conservation strategies analyzed included; evapotranspiration (ET) based irrigation scheduling, changes in crop variety, irrigation equipment improvements, changes in crop type, implementation of conservation tillage methods, precipitation enhancement, and the conversion from irrigated to dryland farming. While all the strategies result in water savings, several are devastating to the regional economy. The strategies of changing crop type and changes in crop variety generated the most water savings but these strategies had the most negative impact on the regional economy. The strategies of precipitation enhancement and irrigation scheduling provide both a substantial water savings and have a positive impact on the regional economy. Even with implementation of the positive impacting strategies, the 60 years demand shortage within the region is not met through conservation alone under the proposed implementation levels of strategies. Either higher implementation levels of the strategies considered and/or regulation of groundwater pumping may be required to meet water conservation goals set by the regional water planning group. Decision makers need to weigh carefully water savings, implementation costs and impacts on the regional economy when developing water conservation policies.