



## WATER RESOURCES RESEARCH GRANT PROPOSAL

**Project ID:** 2003TX90B

**Title:** Quantification of Stochastic Crop-Water Production Functions and Net Profit-Water Functions for Agriculture on the Edwards Aquifer

**Project Type:** Research

**Focus Categories:** Agriculture, Irrigation, Water Use

**Keywords:** irrigation, groundwater resources management, farm profitability

**Start Date:** 03/01/2003

**End Date:** 02/28/2004

**Federal Funds:** \$4182.00

**Matching Funds:** \$10000.00

**Congressional District:** 5

**Principal Investigators:** Lee, Ju Young; Brumbelow, Kelly

**Abstract:** The Edwards Aquifer Authority of Texas, a regional governmental agency, has developed regulations that limit the amount of water agricultural producers can use for crop irrigation. Under these rules, farmers can use 2 acre-feet of irrigation water each year, but can sell 1 acre-foot on the open market. The emphasis of this project is to quantify the relationship of seasonal irrigation to crop water yields throughout the region. Advanced optimization techniques and physiologically based models of crop growth and development will be used to develop the crop water production function. Through this project, agricultural producers will be given additional information on how to make the best irrigation decisions when limited water supplies are available for irrigation.

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*[U.S. Department of the Interior](#), [U.S. Geological Survey](#)*

*Maintain: [Schefter@usgs.gov](mailto:Schefter@usgs.gov)*

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