

## **Mitigating Water Shortages in a Multiple Risk Environment**

John R.C. Robinson, Texas A&M University, College Station, TX; Ari M. Michelsen, Texas A&M University, El Paso, TX; Noel R. Gollehon, USDA Economic Research Service, Washington, DC

### **ABSTRACT**

This study estimates the economic value of irrigation water shortfalls in the Lower Rio Grande Valley. The water shortage levels correspond closely to the delivery shortfalls experienced by the U.S. during the 1990s when Mexico fell behind on treaty obligations. We identify and evaluate a range of crop choices, appropriate irrigation technology use, water source substitution, and other mitigation strategies used by farmers to deal with water shortages. The effects of exogenous crop price and yield risk, as well as other structural considerations are incorporated in the estimation of the marginal value of irrigation water. Results show that South Texas farmers react to risk by diversifying their crop mix, with implications for the imputed value of water and soil resources.

Author Contact Information:

John R.C. Robinson

[jrcr@tamu.edu](mailto:jrcr@tamu.edu)