

## **Barriers to Sprinkler Irrigation Adoption in Colorado's Lower Arkansas River Valley: Facts, Fiction, and Water Quality Impacts**

Tony Orlando and Dana Hoag

Department of Agricultural and Resource Economics, Colorado State University

Timothy K. Gates

Department of Civil and Environmental Engineering, Colorado State University

**Abstract.** Southeastern Colorado's Lower Arkansas River Valley (LARV) is home to substantial irrigated agriculture, complex water institutions, and significant water quality concerns. While supporting the agricultural economy of the region, a century of irrigation has led to several environmental impacts ranging from shallow saline water-tables to elevated selenium concentrations in the Arkansas River. Best Management Practices (BMP) have been identified to assist in improving water quality, associated with a reduction in irrigation return flow volumes in the region. Improving the efficiency of irrigation systems is one potential method of reducing irrigation return flow volumes. However, barriers to improving irrigation efficiency, perceived or real, exist as a result of the Arkansas River Compact between Colorado and Kansas. Recent policy changes aimed at reducing these barriers have been successful in expanding adoption, but could potentially fall short of conditions needed to solve the LARV's irrigation induced water quality problems. With the assistance of the Arkansas River Management Committee (ARMAC), a local stakeholder group comprised of water users and managers, barriers to adoption of sprinklers have been identified, and analysis of these barriers conducted. This talk aims to discuss the identified barriers to adoption of sprinklers, recent efforts to reduce these barriers, and describe ongoing interdisciplinary research to be conducted to ensure a prosperous agricultural environment in the future in the LARV.