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# Department of Agricultural and Applied Economics

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## College of Agricultural Sciences and Natural Resources



C A S N R  
COLLEGE OF AGRICULTURAL SCIENCES AND NATURAL RESOURCES  
T E X A S T E C H U N I V E R S I T Y

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# Departmental Overview

- 14 Faculty members
    - (5 involved in water-related research)
  - 27 Graduate students
    - (7 involved in water-related research)
  - 270 Undergraduate students
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# Departmental Research Philosophy

- Function is to understand economic consequences and enhance decision-making at the firm level and at the social level
  - Research efforts tend to be applied in nature, focusing on management and policy issues.
    - Use of water => Value of water => Social evaluation of resource
  - Applied research leads to  
interdisciplinary teamwork.
  - Water research tends to be related to
    - Water use efficiencies
    - Policy analysis
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# Previous Water Economics Research

- Economic Efficiency
    - Analyzed use of groundwater with different irrigation technologies (e.g., Feng and Segarra, 1992)
    - Studied firm level decisions with respect to declining aquifer levels (e.g. Terrell and P. Johnson, 1998)
  - Regional and state economic impacts of water use and use restrictions
    - Analyzed regional economic impacts of declining aquifer levels (e.g. J. Johnson and P. Johnson, 2003).
    - Evaluated regional impacts of water use policies by integrating hydrologic and economic models (e.g. Das and Willis, 2004)
  - Publication list on website  
<http://www.aeco.ttu.edu>
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# Current Research Projects



- Ogallala Initiative
  - Evaluating regional impacts of water use policies
  - Multi-disciplinary
  - Multi-agency (TTU, TAMU, KSU, USDA-ARS)
  - Multi-state (Texas and Kansas)

# Current Research Projects



- Interactions Among Climate, Humans, and Playa Wetlands on the Southern High Plains
  - TIEHH, RWFM, AAEC.
  - Direct effects of climate change on ecology of playas and how ag producers would modify land management practices.

# Current Research Projects



- Water Conflict Resolution in the Lower Rio Grande Valley
  - Analyzing accumulated water debt from Mexico
  - Using dynamic game theory to determine optimal form of compensation for repayment
  - Repayment in dollars or water



# Current Research Projects



- Economic Performance of Irrigation Technology on Cotton in the Southern High Plains
  - Evaluated subsurface drip irrigation (SDI)
  - Evaluated precision agricultural practices
  - Collaboration with TAMU agronomists

# Current Research Projects

- Natural Resource Management and Sustainability Issues in the Texas High Plains
  - Analyze and evaluate economic performance and risk efficiency of alternative crop and livestock management systems and implications for water conservation.
  - Evaluation is in terms of profitability and water conservation.
  - Collaboration with TTU and TAMU agronomists



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# How to make multi-disciplinary research work with applied economists

- Applied economists evaluate the economic consequences of technologies, practices, policies, programs.
  - Bring the applied economist on to the team early in the project proposal phase. This facilitates developing data usable in economic analysis.
  - Funding needs usually revolve around salaries (faculty and grad students), travel, and M&O.
  - Most equipment requirements are computers and software.
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# Summary

- The researchers in the department are committed to multi-disciplinary work.
  - Currently 5 faculty are active in water-related research.
  - Interviewing candidates for a water policy position - associate professor / professor (75% AAEC and 25% RWFM).
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