

# Accomplishments Under the Chancellor's Research Initiative (CRI) in Water Resources at WTAMU



**Dr. Craig Bednarz**  
Agricultural Sciences &  
Texas A&M AgriLife Research



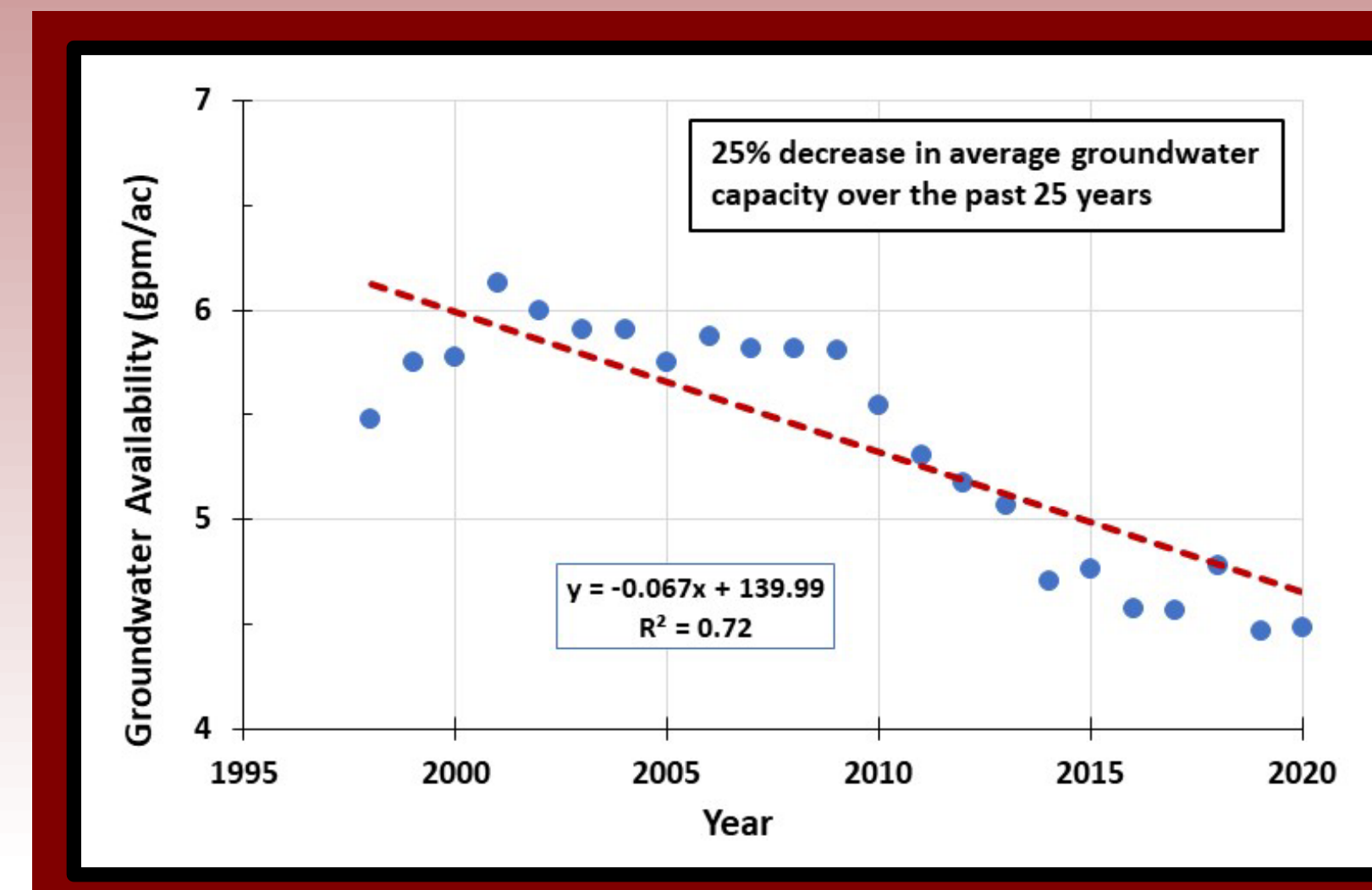
**Dr. David Parker**  
College of Engineering &  
Texas A&M AgriLife Extension



## Abstract

On May 23, 2019, the Texas A&M System announced a Chancellor's Research Initiative (CRI) between WTAMU and Texas A&M AgriLife. The initiative provided for the hiring of two new WTAMU faculty members: Dr. Bednarz in Agricultural Sciences (hired Spring, 2020) who has a 50% joint appointment with AgriLife Research, and Dr. Parker in Engineering (hired Fall, 2021) who has a 50% joint appointment with AgriLife Extension. The CRI provided \$1 million in startup funding to purchase laboratory and field equipment and support undergraduate and graduate students. As outlined in this poster presentation, the CRI funds have been used to leverage numerous collaborative research projects among WT, AgriLife, and USDA researchers in addition to county extension agents, farmers/producers, and faculty at other universities.

## Collaboration and Teamwork



In the next 25 years, groundwater capacity is projected to decrease by 25% in the northern panhandle and 56% in the southern panhandle.

## Collaborative Research Projects Initiated

- Cotton production in thermo-limited regions (WT, AgriLife, USDA)
- Crop acreage irrigation optimization tool (WT, AgriLife, USDA, IIC, CEA)
- Improving soil water retention with manure application and crop residue management (WT, AgriLife, USDA)
- Soil moisture sensor demonstration tool (WT, AgriLife, USDA, IIC, CEA)
- Life-cycle assessment of U.S. wheat production (WT, AgriLife, USDA-Temple, Colorado State Univ.)
- Evaluation of cover crop best management practices (WT, AgriLife)
- Unmanned aerial system (UAS) based platform to improve water use efficiency (WT, AgriLife-Lubbock, AgriLife-Corpus)
- Conservation tillage in corn (WT, AgriLife, USDA, IIC, CEA)
- Seed germination with machine learning (WT Engr/Ag)
- Manure treatment using desalination (WT/TAMU)
- Paunch composting and land application (WT, TAMU-Kingsville)



## Student Collaborators

- Undergraduate –
  - ENGR: Cooper Hokanson, Adam Coker
  - CHEM: Erica Barrera
  - AGRI: Cristian Camacho, Riley Siders, Cole Novak
- Graduate –
  - AGRI: Bradley Duvall, Beverly Meyer, Emily Brorman
  - MATH: Alyssa McElroy
  - TAMU: Myeongseong Lee
  - TAMUK: Amberly Zaragoza



## Administrative Support

- Dr. Lance Kieth (Agricultural Sciences)
- Dr. Emily Hunt (Engineering)
- Dr. Dana Porter (AgriLife Extension)
- Dr. Brent Auvermann (AgriLife Research)
- Dr. Kevin Pond (PECANS)
- Dr. Angela Spaulding (WT Grad School)



## Grant Funding (\$1,145,000)

- \$6,500 – Cotton Incorporated (2020, Bednarz et al)
- \$50,000 – Ogallala Aquifer Program (2021, Bednarz et al)
- \$2,500 – Texas Wheat Producers (2021, Bednarz et al)
- \$620,000 – Texas Water Resources Institute (2021, Maeda/Bednarz et al)
- \$123,591 – Irrigation Innovation Consortium (2022, Parker/Bednarz et al)
- \$69,959 – Ogallala Aquifer Program (2022, Brandini/Bednarz et al)
- \$51,743 – Ogallala Aquifer Program (2022, Parker/Bednarz et al)
- \$20,000 – BASF Field Trial (2022, Bednarz et al)
- \$95,745 – Ogallala Aquifer Program (2022, Howell/Bednarz et al)
- \$25,000 – TSSC – Cotton Inc. (2022, Bednarz et al)
- \$55,100 – AgriLife Research Equipment (2022, Auvermann/Bednarz et al)
- \$25,000 – Cotton Incorporated (2023, Bednarz et al)

## WTAMU Faculty Collaborators

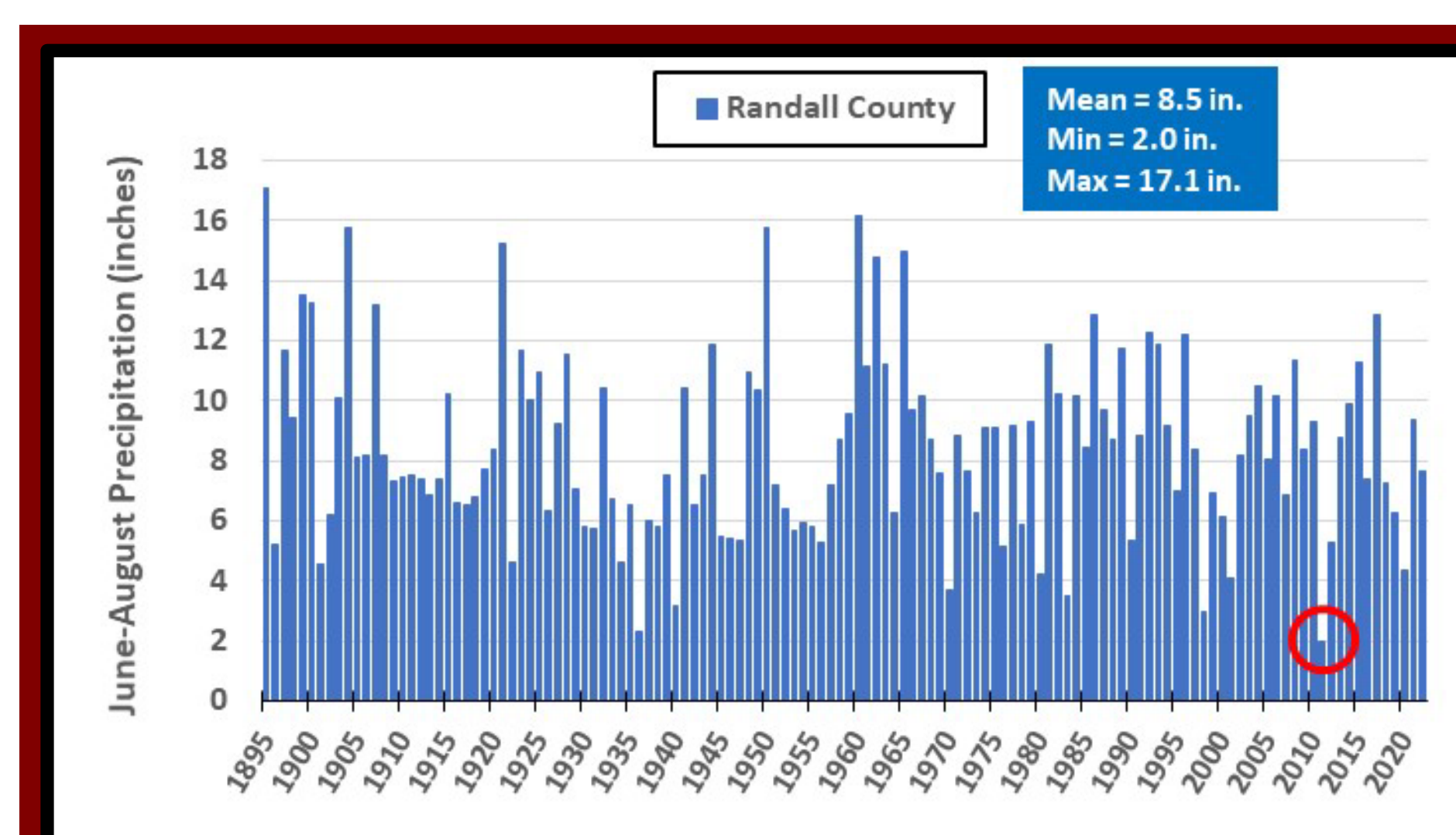
- AGRI: Marty Rhoades, Brock Blaser, Loni Lucher, Travis Tennant, Ty Lawrence, Guillermo Marcillo, Bob Robinson
- CHEM: Nick Flynn
- ENGR: Ben Askarian, Azi Tabei, Nathan Howell, Sanjoy Bhattacharia, Swastika Bithi, Erick Butler, Alemayehu Fisseha, Anirban Pal, Kenneth Leitch, Joshua Partheepan, Emily Hunt
- MATH: Pam Lockwood
- LEES: Jim Rogers, Erik Crosman, Brad Johnson

## AgriLife (Amarillo) Collaborators

- Jourdan Bell, Jason Smith, Thomas Marek, Ken Casey, Carolina Brandini, Brent Auvermann

## External Collaborators

- AgriLife Lubbock: Wenxuan Guo, Katy Lewis, Wayne Keeling, Jane Dever, Joseph Burke, Terry Wheeler, Dana Porter
- AgriLife Corpus Christi: Mahendra Bhandari, Juan Landiver
- USDA-ARS: Susan O'Shaughnessy, Robert Schwartz, Paul Colaizzi, Terra Campbell, Jacek Koziel, Matt Beck, Gary Marek
- County Extension Agents: Dennis Coker, Kristie Keyes, Kristy Slough, J.D. Ragland, Mason Carter
- Producers/Associations: Providence Farm, Cotton Incorporated, Texas Wheat Board, Texas Water Resources Institute, Texas Cattle Feeders Association, Irrigation Innovation Consortium
- Colorado State University: Amy Kremen
- TAMU-Kingsville: Greta Schuster
- Crop Consultants: David Reinart, Eric Burton, Carl Speck, Stephen Cox, Jeff Miller



The Texas panhandle has historically been plagued by variable precipitation and temporal drought conditions.